Saul Ewing LLP

Cristina Stummer
Phone: (609) 452-5023
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September 26, 2014

Sent via Federal Express Overnight Mail

Bonnie Hriczko
Removal Action Branch
U.S. EPA, Region II
2890 Woodbridge Ave., MS-211
Edison, New Jersey 08837

Re: Request for Information CERCLA Section 104(e)
Superior Barrel and Drum Site, Elk, Gloucester County, New Jersey
Response of Stem Brothers, Inc.

Dear Ms. Hriczko:

On behalf of Stem Brothers, Inc., enclosed please find Stem Brothers' timely response to the USEPA's Request for Information, per CERCLA Section 104(e), for the Superior Barrel and Drum Site, Elk, Gloucester County, New Jersey.

Thank you very much for your courtesies.

Very truly yours,
Saul Ewing LLP

Cristina Stummer
Encls.

c Stem Brothers, Inc. (via U.S. Mail)
William Tucker, Esq., EPA Office of Regional Counsel (via U.S. Mail)

437420

RECEIVED
SEP 29 2014

RESPONSE OF STEM BROTHERS, INC.
TO THE USEPA REQUEST FOR INFORMATION
PURSUANT TO CERCLA SECTION 104(e)

This document contains Stem Brothers, Inc.'s ("Stem Brothers") response to the USEPA's Request for Information pursuant to CERCLA Section 104(e) for the Superior Barrel and Drum Site ("Requests"). Stem Brothers' objects to each of the Requests to the extent that they are overly broad, burdensome and beyond the scope of USEPA's authority under CERCLA Section 104(e). Subject to and without waiving this objection, Stem Brothers has conducted a diligent, good faith inquiry for information and documents responsive to the Requests, and responds to the Requests as follows:

REQUEST FOR INFORMATION

1.

a. State the correct legal name of the Company.

Response to 1.a. Stem Brothers, Inc.

b. Identify the legal status of the Company (corporation, partnership, specify if other) and the state in which the Company was organized.

Response to 1.b. Stem Brothers is a New Jersey corporation.

c. State the names and addresses of the President; Chairman of the Board and the Chief Executive Officer of the Company.

Response to 1.c.

1. Richard D. Stem, Vice President, Stem Brothers, P.O. Box 619, Milford, NJ 08848

2. John D. Stem, Vice President, Stem Brothers, P.O. Box 619, Milford, NJ 08848

3. H. Craig Stem, Secretary/Treasurer, Stem Brothers, P.O. Box 619, Milford, NJ 08848

d. Provide the name of an attorney, if any, who will serve as the legal contact for your Company in that matter.

Response to 1.d. Cristina Stummer, Esq., Saul Ewing LLP, 650 College Road East, Suite 4000, Princeton, NJ 08540

e. If your Company is a subsidiary or affiliate of another corporation, or has subsidiaries itself, identify each such entity and its relationship to your Company.

Response to 1.e. Stem Brothers is not a subsidiary or affiliate of another corporation, and does not have subsidiaries.

f. Identify the state and date of incorporation and the agent for service of process in the State of Incorporation and in the State of New Jersey for your Company and for each entity identified in your response to Question 1(e), above.

Response to 1.f. Stem Brothers, Inc. was incorporated in the State of New Jersey on July 21, 1960, and the agent for service of process for the Superior Drum & Barrel site is Cristina Stummer, Esq. Saul Ewing LLP, 650 College Road East, Suite 4000, Princeton, New Jersey 08540-6603.

g. If the Company is a successor to, or has been succeeded by another entity, identify such other entity and provide the same information requested above for each.

Response to 1.g. Stem Brothers is not a successor to, and has not been succeeded by another entity.

h. If the Company transacted business with SBD in the name of an entity not already disclosed above, give the name of such entity and state its relationship to the Company.

Response: Not applicable.

2. State whether any of your Company's facilities has ever conducted any business transactions of any nature with Superior Barrel and Drum Company, Inc. ("SBD"), including but not limited to the sale, purchase, removal; disposal, treatment, or storage of any barrels, drums, totes, overpacks or other containers (hereinafter collectively referred to as "Containers"). Answer: __X__ YES: ____ NO.

3. If your answer to Question 2, above; is yes; identify each Company facility involved in all such transactions and provide the following information for each.

a. State the name and address of each facility and describe each facility operations;

Response: Stem Brothers, Inc.'s facility is located at 760 Frenchtown Road, Milford, Hunterdon County, New Jersey. From the facility, Stem Brothers operates its full service petroleum retail marketer business that sells #2 heating oil, #2 diesel fuel, motor oil, gasoline, kerosene, and propane to residential homes and commercial businesses. Stem Brothers also provides HVAC installation and maintenance services, and residential heating oil tank removal services. The facility also contains smaller out buildings in which equipment and the fleet of commercial vehicles used in the business are stored.

A portion of the property also contains a commercial car wash that is owned and operated by Shammy Shine Car Washes, Inc., a company that is not a subsidiary to, or an affiliate of, Stem Brothers, Inc.

b. For each facility, describe the nature of business relationship between that facility and SBD, including the nature of services rendered or products sold;

Response: Stem Brothers maintains an electronic database of Stem Brothers' historical and current accounts receivable and accounts payable. Electronic

records date from 1988 until present day. A search of that database identified only one entry for an account payable to SBD for $200.00 for SBD to make a one-time pick up approximately forty (40) 55-gallon empty drums, on June 2, 1995 from Stem Brothers' facility, located at 760 Frenchtown Road, in Milford, New Jersey. Based on the Affiant's knowledge of operations in 1995, the forty (40) 55-gallon drums picked up by SBD were steel and empty, and previously contained petroleum products, such as motor oil, or methanol, used in Stem Brothers' operations.

By way of further response, Stem Brothers purchased 55-gallon drums of refined motor oil (previously from Gulf Oil, and currently from Citgo) and methanol directly from a distributor for use in Stem Brothers' operations. When the motor oil in the drum was completely consumed from operations, Stem Brothers would drain any residual motor oil in the drum into a 500-gallon above-ground storage tank (AST) (located within secondary containment at the facility) until a continuous stream of liquid no longer occurred. The drum was then visually inspected to ensure remaining residual product was drained into the AST. The empty drum was then staged on-site, until shipped off-site for reclamation/recycling.

Sometimes, after a 55-gallon motor oil drum was empty, Stem Brothers would re-use the drum when performing the removal of a residential heating oil tank. The drum would be used to store any residual heating oil removed from the tank and lines, and then would be brought back to the facility. The residual heating oil in the drum was drained into a dedicated AST. The drum was then visually inspected to ensure remaining residual product was drained into the AST. The empty drum was then staged on-site, until shipped off-site for reclamation/recycling.

Stem Brothers began the sale of propane in 1990. Methanol is used at the facility to treat incoming propane transport loads (10,000 gallons) for any type of water moisture that may be present from the refinery processing and/or storage tank condensate. Stem Brothers adds five (5) gallons of methanol into a capillary/injection system as the transport load is engaged in the off-loading process. Empty methanol drums are staged on-site, until shipped off-site for reclamation/recycling.

Based on reasonable due diligence and to the best of the Affiant's knowledge, the forty (40) 55-gallon steel drums that SBD picked up from the facility on June 2, 1995 were empty and did not contain hazardous waste at the time of shipment.

Based on reasonable diligence, Stem Brothers was unable to locate any paper records for the June 2, 1995 electronic accounts payable entry to SBD. Stem Brothers maintains a seven-year document retention policy for these types of records. Further, Stem Brothers did not locate any other entries in its electronic database for accounts payable to SBD, and did not locate any paper records for accounts payable to SBD within the last seven years.

c. Provide copies of any contracts, agreements or other arrangements between that facility and SBD;

Response to 3.c. Please see Response to 3.b.

d. Provide copies of all permits issued pursuant to the Resource Conservation and Recovery Act, 42 U.S.C. Section 6901, et seq. ("RCRA") for each facility; and

Response to 3.d. Stem Brothers does not engage in operations at its 760 Frenchtown Road, Milford, New Jersey facility, which require a RCRA permit. By way of further answer, Stem Brothers' facility, located at 760 Frenchtown Road, in Milford, New Jersey, is a full service petroleum retail marketer that sells #2 heating oil, #2 diesel fuel, motor oil, gasoline, kerosene, and propane to residential homes and commercial businesses. Because of these operations, the facility is subject to the NJDEP's Discharge of Petroleum and Other Hazardous Substance regulations, N.J.A.C. 7:1E, and the EPA's Spill Prevention, Control, and Countermeasure (SPCC) Rule, 40 CFR part 112, and therefore, maintains a DPCC/DCR/SPCC Plan. The NJDEP inspects the facility approximately once a year.

e. Identify the EPA RCRA identification number, if any, for each facility.

Response to 3.e. Stem Brothers currently is a Conditionally Exempt Small Quantity Generator of hazardous waste. Facility operations generate hazardous waste shipped under code D002 for spent muriatic acid, used to clean hot water coils, as part of the HVAC services. For those boiler systems that rely on a domestic hot water coil to produce potable hot water, the coil needs to be cleaned by a liquid scale remover in order to reduce mineral build-up, hence increasing the water pressure and overall performance. The D002 waste that is generated from said operation is stored at the facility, in labeled plastic drums for disposal from a certified third party vendor. Stem Brothers contracted with Veolia Environmental Services in 2011 and 2014 for the on-site removal of the D002 waste (see attached manifests).

Historically, the facility maintained EPA RCRA identification numbers NJD986653277 and NJ0000370031, which are discontinued. Manifests associated with these numbers are retrievable from the NJDEP's on-line database that includes historical manifest information from 1980-2009. According to the NJDEP's database, Stem Brothers shipped D001 waste in 1993 and 1994 from the facility located at 760 Frenchtown Road, in Milford, New Jersey. According to the NJDEP database, the shipments in 1993 and 1994 were sent to licensed facilities, and not to SBD.

4. If your answer to Question 2, above, is yes, did any of the transactions between any Company facility and SBD involve the transport or shipment of any Containers from that facility to SBD by any person, regardless of whether such Containers contained no material whatsoever, contained more or less than one inch of material, or may have been described as RCRA "empty"? Answer: __X__ YES: ____ NO.

5. If your answer to Question 4, above, is yes, for each such transaction provide the following information:

a. Identify the specific dates of each transaction, the Company facility involved with each transaction, the intended purpose of each transaction, and the number and type of Containers involved in each transaction;

Response to 5.a. Based on reasonable investigation and to the best of the Affiant's knowledge, SBD made a one-time pick up of forty (40) 55-gallon steel empty drums from Stem Brothers' facility, located at 760 Frenchtown Road, in Milford, New Jersey, on June 2, 1995. By way of further response, see Response to 3.b.

b. Provide copies of all documents relating in any way to each transaction, including but not limited to copies of delivery receipts, invoices, bills of lading, purchase orders or payment devices; and

Response to 5.b. Please see Response to 3.b.

c. Identify all persons who might have knowledge of the transaction or who had any responsibility regarding the transaction.

Response to 5.c. John David Stem, Vice President, Stem Brothers, Inc.

6. For each Company facility identified in response to Question 5, above, for the time period from 1974 to 2013:

a. Describe the facility's operations;

Response to 6.a. Please see Response to 3.a.

b. Identify all chemicals used as raw materials in that facility's operations;

Response to 6.b. Stem Brothers' facility, located at 760 Frenchtown Road, in Milford, New Jersey, stores for retail sale #2 heating oil, #2 diesel fuel, motor oil, kerosene, gasoline, and propane (LPG).

The facility also injects methanol into the propane, in preparation for the retail sale of propane to residential and commercial customers. By way of further response, see Response 3.b.

c. Identify all chemicals contained in products produced at that facility;

Response to 6.c. Stem Brothers does not produce products at the facility located at 760 Frenchtown Road, in Milford, New Jersey, but Stem Brothers does inject methanol into propane, to prepare the propane for the retail sale to residential and commercial customers. By way of further response, see Response 3.b.

d. Identify all chemicals used to clean equipment or machinery at that facility;

Response to 6.d.

* For Stem Brothers' commercial vehicle fleet, Stem Brothers uses every-day household grade cleaners to clean the interior and exterior of

the vehicles. Stem Brothers also has a five-gallon bucket of a product called PWS Parts Washer Solvent, which is purchased approximately once every three (3) years. Stem Brothers also performs light maintenance on the fleet vehicles, such as oil changes. Used oil from the vehicle and filters is drained into an AST. All major vehicle repairs are performed off-site.

e. Identify the nature and chemical constituents of all waste streams at that facility and their disposition;

Response to 6.e.

The following contains a list of primary waste streams generated from Stem Brothers' operations at 760 Frenchtown Road, in Milford, New Jersey.

* Used anti-freeze, used oil, and off-spec heating oil are recycled by a certified third party vendor, which is currently FCC Environmental, Inc.

* For spent muriatic acid for cleaning heating coils, see Response 3.e.

* Municipal solid waste is collected in on-site dumpsters, currently hauled by Sanico, Inc.

* Empty 55-gallon steel drums are currently recycled with Klein Recycling, located in Hillsboro, New Jersey.

f. Identify any other chemicals used at that facility and describe their use;

Response to 6.f. Please see Responses to 3.b., 3.d., and 6.e.

g. Provide all Material Safety Data Sheets (MSDS) for all chemicals listed in answer to this Question 6.

Response to 6.g. Enclosed are MSDS for the primary products sold and used by Stem Brothers in its petroleum retail marketer business.

7. Was any Container identified in response to Question 5, above, previously used to contain any material? Answer: __X__ YES; ___ NO. If your answer is yes, for each such Container provide the following:

a. Identify each material previously contained within such Container, including its specific chemical constituents, physical state, quantity by volume and weight, and hazardous and other characteristics;

Response to 7.a. Based on reasonable investigation and to the best of the Affiant's knowledge, see Responses to 3.b. and 7.c.

b. Provide all written analyses or other documents prepared for or relating to each such material which may be in the custody or control of the Company; and

Response to 7.b. Please see Responses to 3.b. and 7.c.

c. Provide all material safety data sheets (MSDS) relating to each such material.

Response to 7.c. Please see the MSDS for motor oil, heating oil and methanol, produced under Response to 6.g.

8. Did any Container that was the subject of any transaction identified in response to Question 5, above contain any material whatever, in any quantity, at the time of its transport or shipment from the Company facility, regardless of whether or not it is or was ever alleged to be "empty" under RCRA, or alleged to contain less than one inch of material? Answer: ____ YES; _X__ NO, to the best of the Affiant's knowledge.

9. If your answer to Question 8 is yes, for each Container that contained any material whatever, in any quantity, at the time of its transport or shipment from the Company facility:

   a. Identify such material, including its specific chemical constituent(s), physical state, quantity by volume and weight, and hazardous and other characteristics;

   b. Provide all written analyses or other documents prepared for or relating to each such material which may be in the custody or control of the Company; and

   c. Provide all material safety data sheets (MSDS) relating to each such material.

10. Do you contend that any Container that was the subject of any transaction identified in response to Question 5, above, did NOT contain any material whatever, in any quantity, at the time of its transport or shipment from the Company facility? Answer: _X_ YES, to the best of the Affiant's knowledge; ___ NO.

11. If your answer to Question 10 is yes, for each such Container provide all facts upon which you rely for your assertion.

Response to 11. Please see Response to 3.b.

12. For those transactions identified in response to Question 5, was any treatment or cleaning of any Container performed by any person prior to the time that the Container was transported or shipped from the Company to SBD, including any process or procedure by which the Container was emptied, drained, wiped or otherwise cleaned? Answer: _X_ YES: ___ NO;

Response to 12. Please see Response to 3.b.

13. If your answer to Question 12, above, is yes, for each such Container provide a detailed description of all such treatment, including any emptying, draining, wiping or cleaning, and identify all chemicals used in such treatment or cleaning.

Response to 13. Please see Response to 3.b.

14. For each transaction identified in response to Question 5 involving any third-party transporter, identify each such transporter, including the name and address of such transporter, and identify in which of the transactions such transporter acted.

Response to 14. Please see Response to 3.b. By way of further response, Superior Barrel and Drum made a one-time pick up of forty (40) empty, steel 55-gallon drums from Stem Brother's facility, located at 760 Frenchtown Road, in Milford, New Jersey, on June 2, 1995.

15. Identify each person consulted in responding to these questions and all questions on which he or she was consulted.

Response to 15.

John David Stem, Vice President, Stem Brothers, Inc. – Questions 1 – 17.

Richard D. Stem, Vice President, Stem Brothers, Inc. – Questions 1-17.

16. Identify any other person or entity (e.g., individual, company, partnership, etc.) having knowledge of facts relating to the questions which are the subject of this inquiry. For each such person that you identify, provide the name, address, and telephone number of that person, and the basis of your belief that he or she has such knowledge. For past and present employees, include their job title(s) and a description of the responsibilities.

Response to 16.

1. Robert Weaver, Dispatcher, Stem Brothers, Inc, P.O. Box 619, Milford, NJ 08848. Mr. Weaver maintains knowledge of best management practices for the petroleum products stored for retail sale and used at the Stem Brothers' facility, located at 760 Frenchtown Road, in Milford, New Jersey.

2. Scott Wydner, Fleet Management, Stem Brothers, Inc., P.O. Box 619, Milford, NJ 08848. Mr. Wydner maintains knowledge about the fleet maintenance shop.

17. Supply any additional information or documents that may be relevant or useful to identify other sources who disposed of or transported Containers to the Site.

Response to 17. Please see Response to 3.b.

CERTIFICATION OF ANSWERS TO REQUEST FOR INFORMATION
Superior Barrel and Drum Site, Elk, Gloucester County, New Jersey

State of New Jersey:

County of Hunterdon:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document (response to EPA Request for Information) and all documents submitted herewith, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete, and that all documents submitted herewith are complete and authentic unless otherwise indicated. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I am also aware that I am under a continuing obligation to supplement my response to EPA's Request for Information if any additional information relevant to the matters addressed in EPA's Request for Information or my response thereto should become known or available to me.

John David Stem, II
NAME (print or type)

Vice President
TITLE (print or type)

SIGNATURE

Sworn to before me this 25th
day of Sept., 2014

Patricia O Gardner
Notary Public

PATRICIA O. GARDNER
Notary Public of New Jersey
My Commission Expires
on August 14, 2017

VEOLIA
ENVIRONMENTAL SERVICES
TECHNICAL SOLUTIONS

VENDOR NO. 8456 P
G/L # 5750
DEPARTMENT EPA
CHECK NO.

CUSTOMER INVOICE	
INVOICE DATE	INVOICE NUMBER
5/12/2014	411360215
Net 30 Days	

For Billing Inquiries
Call DENNIS A. SABATO at 1(973) 347-7111
Customer No. 540258

BILL TO: STEM BROTHERS, INC.
PO BOX T
760 FRENCHTOWN ROAD
MILFORD, NJ 08848
BOB WEAVER

Generator No. 540259

JOB SITE: STEM BROTHERS
760 FRENCHTOWN ROAD
PO BOX T
MILFORD, NJ 08848
BOB WEAVER

MANIFEST NUMBERS:
A 000923812VES

CUSTOMER P.O. NUMBER	SERVICE DATE RANGE	TERR.
{none}	05/02/2014	N01

	DESCRIPTION		UOM	QTY	UNIT PRICE	EXTENSION
663209	MURIATIC ACID SOLUTION	STB	551H1	4.00	$135.00	$540.00
Misc.	STATE REGULATORY FEES (NJ GENERATORS)		EACH	1.00	$10.00	$10.00
Misc.	FUEL & SECURITY SURCHARGE		EACH	1.00	$1.00	$1.00
Manpwr.	TECHNICAL SUPERVISOR		HOUR	1.00@1.00	$69.75	$69.75
Manpwr.	MATERIAL PICK-UP CHARGE		EACH	1.00@1.00	$225.00	$225.00

attn Bob

TOTAL $845.75

Veolia ES Technical Solutions LLC is permitted for and has capacity to accept waste listed above in container quantities.
ALL PAST DUE AMOUNTS WILL BEAR INTEREST AT 1.5% PER MONTH OR THE MAXIMUM RATE ALLOWED BY LAW, WHICHEVER IS LESS.

PLEASE REMIT TO: PO BOX 73709, CHICAGO, IL 60673-7709

VEOLIA
ENVIRONMENTAL SERVICES

Activity Report

JOB I.D. 1996990000 W/O NO. 1996990000
BILL DOC NO 2H59498647
GENERATOR I.D 540259 EPA ID NJCESQG

BILL TO STEM BROTHERS, INC.
PO BOX T
760 FRENCHTOWN ROAD
MILFORD, NJ 08848
(908) 996-4441

JOB SITE STEM BROTHERS
760 FRENCHTOWN ROAD
PO BOX T
MILFORD, NJ 08848
(908) 996-4441

CONTACT BOB WEAVER

CONTACT BOB WEAVER

MANIFEST NUMBER(S):
000923812VES

CUSTOMER P.O. NUMBER	PROJECT NUMBER	SHIP DATE	TERR.
		05/02/2014	N01

DESCRIPTION	# CONT.	CONT./CODE	QTY	UOM	PG/LN	WASTE AREA
Manifest # 000923812VES WP 663209 / Approval STB002084 MURIATIC ACID SOLUTION	4	55IH1-DF	1600	P	1 / 1	
05/02/2014 Manpwr - TECHNICAL SUPERVISOR - 10:30 AM to 11:30 AM TIM S		938	1@1	HOUR		
05/02/2014 Manpwr - MATERIAL PICK-UP CHARGE		969	1@1	EACH		
05/02/2014 Misc. - STATE REGULATORY FEES (NJ GENERATORS)		4418	1	EACH		
05/02/2014 Misc. - FUEL & SECURITY SURCHARGE		3180	1	EACH		

Total Hours: 1
# of Containers 4
Total Pounds: 1600

Veolia Environmental Solutions is permitted for and has capacity to accept waste listed above in container quantities.

FORM# VES-6

VEOLIA
ENVIRONMENTAL SERVICES

Activity Report

JOB NO: 1996990000 WO NO: 1996990000
BILL DOC NO: ZH59493647
GENERATOR NO 540259 EPA ID: NJCESQG

BILL TO: STEM BROTHERS, INC.
PO BOX T
760 FRENCHTOWN ROAD
MILFORD, NJ 08848
(908) 996-4441

CONTACT: BOB WEAVER

JOB SITE: STEM BROTHERS
760 FRENCHTOWN ROAD
PO BOX T
MILFORD, NJ 08848
(908) 996-4441

CONTACT: BOB WEAVER

MANIFEST NUMBER(S)
000923312VES

CUSTOMER P.O. NUMBER	PROJECT NUMBER	SHIP DATE	TERR.
		05/02/2014	N01

Comments:

Signature _____

Print Name _____

Veolia Environmental Solutions is permitted for and has capacity to accept waste listed above in container quantities.

FORM# VES-6

VEOLIA
ENVIRONMENTAL SERVICES

PACKING SUMMARY

Generator Number 540252
STEM BROTHERS
760 FREIGHTOWN ROAD
MILFORD, NJ 08848
Attn / BOB WEAVER
EPA ID: NJCES0G

Manifest Number 000923812VES
Field System ID ZH
Work Order Number 1996990000
Date Shipped 05/02/2014

Container# ZH-1996990000-001 Waste Area Manifest Page/Line 01 / 1

VAP 663209 DisposalCode STB002084 PHY State: L

Date Accumulated 05/02/2014 Gen Drum ID

Shipping Name: UN3264, WASTE CORROSIVE LIQUID, ACIDIC INORGANIC, n.o.s., 8, II, RQ

No. of Commons 04 Outer Container: 55H1-DF Inner Container

Primary Waste Codes: D002 PCB Serial #: OOS Date / /

Total Cmns Vol 1600 SIC 1711 Source: G11 Form: W319 System: H132 Cubic Ft: 7.60

Individual Common Weights 400, 400, 400, 400 (POUNDS)

Units	Container Size	Net Weight	Chemical Name	EPA/State Codes
1	55 GAL		MURIATIC ACID (CONTAINING 31.45% HCL) [50%] WATER [50%]	D002

VEOLIA ENVIRONMENTAL SERVICES

Land Disposal Restriction Notification Form

Generator Name STEM BROTHERS

EPA ID Number NJCESQG Manifest 000920812VES

This notice is being provided in accordance with 40 CFR 268.7 to inform you that this shipment contains waste restricted from land disposal by the USEPA under the land disposal restriction program. Identified below for each container is the designation of the waste as a wastewater or non-wastewater, the Clean Water Act (CWA) permit status associated with the treatment/disposal facility, applicable waste codes and any corresponding subcategories, list of any F001-F005 solvent constituents that are present in the waste, and any underlying hazardous constituents (UHC) that are present.

Container Number ZH-1996990000-001 (1/ 1)

WTP / Approval Code	663209 / STB000064
Form Designation / CWA Status	Non-Wastewater / Non-CWA
Waste Codes (Subcategories)	D002
Constituents (F001 - F005)	None
UHCs Present	None
Treatment Requirements	Restricted waste requires treatment to applicable standards.
Additional Notices	

I hereby certify that all information in this and associated land disposal restriction documents is complete and accurate to the best of my knowledge and information.

Signature _____

Title _____ Date 5/9/11

FORM# VES-6

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
[illegible]		[illegible]	000923812 VES

GENERATOR

5. Generator's Name and Mailing Address

STEM BROTHERS
500 FRENCHTOWN ROAD
P. BOX T
MILFORD, NJ 08848

Generator's Site Address (if different than mailing address)

SAME

Generator's Phone: [illegible]

6. Transporter 1 Company Name — U.S. EPA ID Number

VEOLIA ES TECHNICAL SOLUTIONS — [illegible]

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address — U.S. EPA ID Number

VEOLIA ES TECHNICAL SOLUTIONS
LLC
1 EDEN LANE
FLANDERS NJ 07836

Facility's Phone: [illegible]

[illegible]

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. WASTE CORROSIVE LIQUID, ACIDIC INORGANIC, n.o.s., 8, UN	[illegible]	DF	[illegible]	P	D002
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

ER Service [illegible]

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name	Signature	Month	Day	Year
[illegible]	[illegible]	03	02	[illegible]

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: _____

Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name	Signature	Month	Day	Year
Tim Soja	Tim Soja	03	02	10
Transporter 2 Printed/Typed Name	Signature	Month	Day	Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name	Signature	Month	Day	Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

GENERATOR'S INITIAL COPY

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: NJCES2G
2. Page 1 of: 1
3. Emergency Response Phone: (877) 815-0087
4. Manifest Tracking Number: 000923812 VES

GENERATOR

5. Generator's Name and Mailing Address:
STEM BROTHERS
760 FRENCHTOWN ROAD
PO BOX T
MILFORD, NJ 08848
Generator's Phone: 908 996-4441

Generator's Site Address (if different than mailing address): SAME

6. Transporter 1 Company Name: VEOLIA ES TECHNICAL SOLUTIONS — U.S. EPA ID Number: NJD080611369

7. Transporter 2 Company Name — U.S. EPA ID Number:

8. Designated Facility Name and Site Address:
VEOLIA ES TECHNICAL SOLUTIONS L.L.C.
1 EDEN LANE
FLANDERS, NJ 07836
Facility's Phone: 973 347-7111
U.S. EPA ID Number: NJD980536593

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. UN3264, WASTE CORROSIVE LIQUID, ACIDIC, INORGANIC, n.o.s., 8, II (Hydrochloric Acid) (AN)	4	DF	1600	P	D002
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information: ER Service Contracted by VESTS

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Timothy Smith — Signature — Month: 05 Day: 02 Year: 14

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Tim Soja — Signature: Tim Soja — Month: 05 Day: 02 Year: 14

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month — Day — Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H141			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Andrew Hinds — Signature: Andrew Hinds — Month: 05 Day: 02 Year: 14

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

VEOLIA
ENVIRONMENTAL SERVICES
TECHNICAL SOLUTIONS

CUSTOMER INVOICE	
INVOICE DATE	INVOICE NUMBER
03/24/2011	107135669
Net 30 Days	

VENDOR NO. A456
G/L # 5100
DEPARTMENT EPA
CHECK NO. 275285
3/29/11

For Billing Inquiries
Call ALINA S. CHORNAYA at 1(973) 347-1909
Customer No. 540258

BILL TO: STEM BROTHERS, INC.
PO BOX T
760 FRENCHTOWN ROAD
MILFORD, NJ 08848
BOB WEAVER

Generator No. 540259
JOB SITE: STEM BROTHERS
760 FRENCHTOWN ROAD
PO BOX T
MILFORD, NJ 08848
BOB WEAVER

MANIFEST NUMBERS:
A 000519432VES

CUSTOMER P.O. NUMBER	SERVICE DATE RANGE	TERR.
{none}	03/04/2011	N01

	DESCRIPTION		UOM	QTY	UNIT PRICE	EXTENSION
663209	MURIATIC ACID SOLUTION	STB	551H1	2.00	$135.00	$270.00
663209	MURIATIC ACID SOLUTION	STB	301H1	1.00	$115.00	$115.00
663209	MURIATIC ACID SOLUTION	STB	141H1	1.00	$90.00	$90.00
Trans.	VEOLIA ES TECHNICAL SOLUTIONS	STB	55 GAL	2.00	$45.00	$90.00
	Transportation to STB, CN					
Trans.	VEOLIA ES TECHNICAL SOLUTIONS	STB	30 GAL	1.00	$30.00	$30.00
	Transportation to STB, CN					
Trans.	VEOLIA ES TECHNICAL SOLUTIONS	STB	141G	1.00	$15.00	$15.00
	Transportation to STB, CN					
Misc.	FUEL & SECURITY SURCHARGE		EACH	1.00	$95.30	$95.30
Misc.	STATE REGULATORY FEES (NJ GENERATORS)		EACH	1.00	$10.00	$10.00
Manpwr.	TECHNICAL SUPERVISOR		HOUR	1.00@1.00	$68.75	$68.75
Manpwr.	MATERIAL PICK-UP CHARGE		EACH	1.00@1.00	$150.00	$150.00
					TOTAL	$934.05

Veolia ES Technical Solutions LLC is permitted for and has capacity to accept waste listed above in container quantities.
ALL PAST DUE AMOUNTS WILL BEAR INTEREST AT 1.5% PER MONTH OR THE MAXIMUM RATE ALLOWED BY LAW, WHICHEVER IS LESS.

CUSTOMER COPY

PLEASE REMIT TO: PO BOX 73709, CHICAGO, IL 60673-7709

VEOLIA
ENVIRONMENTAL SERVICES

VEOLIA
ENVIRONMENTAL SERVICES

GENERATOR CERTIFICATION

AS A

CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR

I, BOB WEAVER (*Person's name*), on behalf of STEM BROTHERS (*Company's name*)

with a facility located at 760 FRENCHTOWN ROAD PO BOX T MILFORD, NJ 08848 (*Site address*)

certify that I have read the federal hazardous waste regulations found in 40 CFR Parts 261.5 and 262.34 that pertain to the management of waste as a conditionally exempt small quantity generator. Based on my understanding of these rules as they apply to the site identified above, I certify that this site is a conditionally exempt small quantity generator. As such this site is not required to obtain an EPA identification number. In addition the waste being managed by Veolia has not been generated in quantities which exceed the permissible limits.

(Signature) (Date)

VEOLIA
ENVIRONMENTAL SERVICES

Activity Report

JOB NO: 1372733000 WO NO: 1372733000
BILL DOC NO: NO89697784
GENERATOR NO: 540259 EPA ID: NJCES0G6

BILL TO: STEM BROTHERS, INC.
PO BOX T
760 FRENCHTOWN ROAD
MILFORD, NJ 08848
(908) 996-4441

JOB SITE: STEM BROTHERS
760 FRENCHTOWN ROAD
PO BOX T
MILFORD, NJ 08848
(908) 996-4441

CONTACT: BOB WEAVER

CONTACT BOB WEAVER

MANIFEST NUMBER(S):
000519432VES

CUSTOMER P.O. NUMBER	PROJECT NUMBER	SHIP DATE	TERR.
		03/04/2011	N01

DESCRIPTION	# CONT.	CONT.CODE	QTY	UOM	PG/LN	WASTE AREA
Manifest # 000519432VES	4	55TH1-DF	1000 400	P	1 / 1	
WIP 563209 / Approval STB002084	1	55TH1-DF	200			
MURIATIC ACID SOLUTION	1	55TH1-DF	100			
03/03/2011 Manpwr.- TECHNICAL SUPERVISOR		936	1@1	HOUR		

Total Hours: 1
# of Containers: 4
Total Pounds: 1000 1100

Comments:

By: _____

Veolia Environmental Solutions is permitted for and has capacity to accept waste listed above in container quantities

FORM# VES-6

VEOLIA
ENVIRONMENTAL SERVICES

Land Disposal Restriction Notification Form

Generator Name: STEM BROTHERS

EPA ID Number: NJCESQG Manifest: 000619432VES

This notice is being provided in accordance with 40 CFR 268.7 to inform you that this shipment contains waste restricted from land disposal by the USEPA under the land disposal restriction program. Identified below for each container is the designation of the waste as a wastewater or non-wastewater, the Clean Water Act (CWA) permit status associated with the treatment/disposal facility, applicable waste codes and any corresponding subcategories, list of any F001-F005 solvent constituents that are present in the waste, and any underlying hazardous constituents (UHC) that are present.

Container Number: **NO-1372733000-001 (1/ 1)**

WIP / Approval Code:	**663200 / STB002084**
Form Designation / CWA Status:	**Non-Wastewater / Non-CWA**
Waste Codes (Subcategories):	**D002**
Constituents (F001 - F005):	**None**
UHCs Present:	**None**
Treatment Requirements:	**Restricted waste requires treatment to applicable standards.**
Additional Notices:	

I hearby certify that all information in this and associated land disposal restriction documents is complete and accurate to the best of my knowledge and information.

Signature _____

Title _____ Date _____

FORM# VES-6

VEOLIA
ENVIRONMENTAL SERVICES

PACKING SUMMARY

Generator Number: 540259
STEM BROTHERS
790 FRENCHTOWN ROAD
MILFORD, NJ 08848
Attn: BOB WEAVER
EPA ID: NJCESQG

Manifest Number: 000519452VE
Field System ID: NO
Work Order Number: 1372733000
Date Shipped: 03/04/2011

Container#: NO-1372733000-001 Waste Area: Manifest Page/Line: 01 /

WIP: 663209 DisposalCode: ST5002084 PHY State: L

Date Accumulated: 03/04/2011 Gen Drum ID:

Shipping Name: UN3264, WASTE CORROSIVE LIQUID, ACIDIC, INORGANIC, n.o.s., (HYDROCHLORIC ACID), 8, II

No. of Commons: 04 Outer Container: 55H1-DF Inner Container:

Primary Waste Codes: D002 PCB Serial #: OOS Date: / /

Total Cmns Wt: ~~1600~~ 1600 SIC: 1711 Source: G11 Form: W319 System: Cubic Ft.: 7.50

Individual Common Weights: 400, 400, 400, 400 (POUNDS)

Units	Container Size	Net Weight	Chemical Name	EPA/State Codes
1	55 GAL		MURIATIC ACID (CONTAINING 31.45% HCL) [50%] WATER [50%]	D002

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number | 2. Page 1 of | 3. Emergency Response Phone | 4. Manifest Tracking Number: 000519432 VES

GENERATOR

5. Generator's Name and Mailing Address

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name | U.S. EPA ID Number

7. Transporter 2 Company Name | U.S. EPA ID Number

8. Designated Facility Name and Site Address | U.S. EPA ID Number

Facility's Phone:

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1.					
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name | Signature | Month | Day | Year

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name | Signature | Month | Day | Year

Transporter 2 Printed/Typed Name | Signature | Month | Day | Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) | U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) | Month | Day | Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name | Signature | Month | Day | Year

CITGO No. 2 Fuel Oil, All Grades
Material Safety Data Sheet

CITGO Petroleum Corporation
P.O. Box 4689
Houston, TX 77210

MSDS No. AG2FO
Revision Date 12/31/2007

IMPORTANT: This MSDS is prepared in accordance with 29 CFR 1910.1200. Read this MSDS before transporting, handling, storing or disposing of this product and forward this information to employees, customers and users of this product.

Hazard Rankings

	HMIS	NFPA
Health Hazard	* 2	0
Fire Hazard	2	2
Reactivity	0	0

* = Chronic Health Hazard

Protective Equipment

Minimum Recommended
See Section 8 for Details

Emergency Overview

Physical State Liquid.
Color Red. **Odor** Characteristic, Kerosene-like.

WARNING!
Combustible liquid and vapor. - Can cause flash fire.
Harmful or fatal if swallowed - can enter lungs and cause damage.
Can cause eye, skin or respiratory tract irritation.
May be harmful if inhaled or absorbed through the skin.
Overexposure can cause central nervous system (CNS) depression and/or other target organ effects.
Possible Cancer Hazard (See Section 3)
Harmful to aquatic organisms.

SECTION 1. PRODUCT IDENTIFICATION

Trade Name	CITGO No. 2 Fuel Oil, All Grades	**Technical Contact**	(832) 486-5940
Product Number	Various	**Medical Emergency**	(832) 486-4700
CAS Number	68476-30-2	**CHEMTREC Emergency (United States Only)**	(800) 424-9300
Product Family	Fuels.		
Synonyms	Heating Oil; Home Heating Oil; Furnace Oil; Burner Fuel; Fuel Oil No. 2; No. 2 Heating Oil; K-2 Fuel Oil; Grade 2 Distilate Fuel; High Sulfur Fuel Oil; C9-C25 Petroleum Hydrocarbons		

SECTION 2. COMPOSITION

This product may be composed, in whole or in part, of any of the following refinery streams:

Fuel Oil, No. 2 [CAS No.: 68476-30-2]
Hydrodesulfurized Middle Distillate (petroleum) [CAS No.: 64742-80-9]
Straight-run middle distillate (petroleum) [CAS No.: 64741-44-2]
Hydrodesulfurized Light Catalytic Cracked Distillate (Petroleum) [CAS No.: 68333-25-5]
Kerosene [CAS No.: 8008-20-6]
Hydrodesulfurized Kerosine (Petroleum) [CAS No.: 64742-81-0]
Light catalytic cracked distillate (petroleum) [CAS No.: 64741-59-9]

This product contains the following chemical components:

Component Name(s)	CAS Registry No.	Concentration (%)

Nonane, all isomers	Mixture	1 - 10
Trimethylbenzenes, all isomers	25551-13-7	0 - 2
Naphthalene	91-20-3	0 - 2
Cumene	98-82-8	0 - 1
Ethylbenzene	100-41-4	0 - 1

SECTION 3. HAZARDS IDENTIFICATION

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

Major Route(s) of Entry Skin contact. Inhalation.

Signs and Symptoms of Acute Exposure

Inhalation

Breathing high concentrations may be harmful. Mist or vapor can irritate the throat and lungs. Breathing this material may cause central nervous system depression with symptoms including nausea, headache, dizziness, fatigue, drowsiness, or unconsciousness.

Eye Contact

This material can cause eye irritation with tearing, redness, or a stinging or burning feeling. Further, it can cause swelling of the eyes with blurred vision. Effects may become more serious with repeated or prolonged contact.

Skin Contact

This material can cause skin irritation. Symptoms include redness, itching, and burning of the skin. This material can be absorbed by the skin and produce central nervous system depression (headache, nausea, fatigue and/or other symptoms including unconsciousness). If the skin is damaged, absorption increases. Prolonged and/or repeated contact may cause severe dermatitis and/or more serious skin disorders. Chronic symptoms may include drying, swelling, scaling, blistering, cracking, and/or severe tissue damage.

Ingestion

If swallowed, this material may irritate the mouth, throat, and esophagus. It can be absorbed into the blood stream through the stomach and intestinal tract. Symptoms may include a burning sensation of the mouth and esophagus, nausea and vomiting. In addition, it can cause central nervous system effects characterized by dizziness, staggering, drowsiness, delirium and/or loss of consciousness.

Because of the low viscosity, this material can enter the lungs directly by aspiration during swallowing or subsequent vomiting. Aspiration of a small amount of liquid can cause severe lung damage and/or death.

Chronic Health Effects Summary

Secondary effects of ingestion and subsequent aspiration into the lungs may cause pneumatocele (lung cavity) formation and chronic lung dysfunction.

This product contains petroleum middle distillates similar to those shown to produce skin tumors on laboratory rodents following repeated application. All tumors appeared during the latter portion of the typical 2-year lifespan of the animals. Certain studies have shown that washing the exposed skin of the test animal with soap and water between treatments greatly reduces the potential tumorigenic effects. These data suggest that good personal hygiene is effective in reducing the risk of this potential adverse health effect.

This material and/or its components have been associated with developmental toxicity, reproductive toxicity, genotoxicity, immunotoxicity, and/or carcinogenicity. Refer to Section 11 of this MSDS for additional health-related information.

Conditions Aggravated by Exposure

Disorders of the following organs or organ systems that may be aggravated by significant exposure to this material or its components include: Skin, Respiratory System, Liver, Kidneys, Central Nervous System (CNS)

Target Organs

May cause damage to the following organs: kidneys, liver, upper respiratory tract, skin, eyes, central nervous system (CNS).

Carcinogenic Potential

This material may contain ethylbenzene and naphthalene at concentrations above 0.1%. IARC has identified ethylbenzene and naphthalene as possibly carcinogenic to humans (Group 2B) based on laboratory animal studies. The NTP has determined that naphthalene is *reasonably anticipated to be a human carcinogen* based on sufficient evidence from studies in experimental animals. NTP has determined that exposure to diesel exhaust particulates, a complex mixture of combustion products of diesel fuel, is reasonably anticipated to be a human carcinogen.

OSHA Hazard Classification is indicated by an "X" in the box adjacent to the hazard title. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

OSHA Health Hazard Classification				OSHA Physical Hazard Classification					
Irritant	X	Sensitizer		Combustible	X	Explosive		Pyrophoric	
Toxic		Highly Toxic		Flammable		Oxidizer		Water-reactive	
Corrosive		Carcinogenic		Compressed Gas		Organic Peroxide		Unstable	

SECTION 4. FIRST AID MEASURES

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

Inhalation

Move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If breathing is difficult, 100 percent humidified oxygen should be administered by a qualified individual. Seek medical attention immediately. Keep the affected individual warm and at rest.

Eye Contact

Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water for at least 15 minutes while occasionally lifting and lowering eyelids. Do not use eye ointment unless directed to by a physician. Seek medical attention if excessive tearing, irritation, or pain persists.

Skin Contact

Remove contaminated shoes and clothing. Flush affected area with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. Do not use ointments. If skin surface is not damaged, clean affected area thoroughly with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists.

Ingestion

Do not induce vomiting. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Never give anything by mouth to a person who is not fully conscious. Do not leave victim unattended. Seek medical attention immediately.

Notes to Physician

INHALATION: Inhalation overexposure can produce toxic effects. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis. Administer supplemental oxygen with assisted ventilation, as required.

INGESTION: If ingested, this material presents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended. Consider activated charcoal and/or gastric lavage. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in a Trendelenburg and left lateral decubitus position.

SECTION 5. FIRE FIGHTING MEASURES

NFPA Flammability Classification	NFPA Class-II combustible liquid.
Flash Point	Closed cup: AP 52°C (AP 125°F). (Pensky-Martens.)
Lower Flammable Limit	AP 0.6 % **Upper Flammable Limit** AP 7.5 %
Autoignition Temperature	>254°C (>489°F)
Hazardous Combustion Products	Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons and oxides of sulfur and nitrogen.
Special Properties	Combustible Liquid! This material releases vapors when heated above ambient temperatures. Vapors can cause a flash fire. Vapors can travel to a source of ignition and flashback. A vapor and air mixture can create an explosion hazard in confined spaces such as sewers. Use only with adequate ventilation. If container is not properly cooled, it can rupture in the heat of a fire.
Extinguishing Media	SMALL FIRE: Use dry chemicals, carbon dioxide, foam, water fog, or inert gas (nitrogen). LARGE FIRE: Use foam, water fog, or water spray. Water fog and spray are effective in cooling containers and adjacent structures. However, water can cause frothing and/or may not extinguish the fire. Water can be used to cool the external walls of vessels to prevent excessive pressure, autoignition or explosion. DO NOT use a solid stream of water directly on the fire as the water may spread the fire to a larger area.
Protection of Fire Fighters	Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles. Cover pooling liquid with foam. Containers can build pressure if exposed to radiant heat; cool adjacent containers with flooding quantities of water until well after the fire is out. Withdraw immediately from the area if there is a rising sound from a venting safety device or discoloration of vessels, tanks, or pipelines. Be aware that burning liquid will float on water. Notify appropriate authorities of potential fire and explosion hazard if liquid enter sewers or waterways.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

Combustible Liquid! Release can result in a fire hazard. Evacuate all non-essential personnel from release area. Establish a regulated zone with site control and security. Eliminate all ignition sources. Stop the leak if it can done without risk. A vapor-suppressing foam may be used to reduce vapors. Properly bond or ground all equipment used when handling this material. Avoid skin contact. Do not walk through spilled material. Verify that responders are properly trained and wearing appropriate personnel protective equipment. Dike far ahead of a liquid spills. Do not allow released material to entry waterways, sewers, basements, or confined areas. This material will float on water. Absorb or cover with dry earth, sand or other non-combustible material. Use clean, non-sparking tools to collect absorbed material. Place spent sorbent materials, free liquids and other clean-up debris into proper waste containers for appropriate disposal. Certain releases must be reported to the National Response Center (800/424-8802) and state or regulatory authorities. Comply with all laws and regulations.

SECTION 7. HANDLING AND STORAGE

Handling

Combustible Liquid!
A static electrical charge can accumulate when this material is flowing through pipes, nozzles or filters and when it is agitated. A static spark discharge can ignite accumulated vapors particularly during dry weather conditions. Always bond receiving containers to the fill pipe before and during loading. Always keep nozzle in contact with the container throughout the loading process. Do not fill any portable container in or on a vehicle. Special precautions, such as reduced loading rates and increased monitoring, must be observed during "switch loading" operations (i.e., loading this material in tanks or shipping compartments that previously containing gasoline or similar low flash point products).

Fire hazard increases as product temperature approaches its flash point. Keep container closed and drum bungs in place. Remove spillage immediately from walking areas. Do not handle or store near heat, sparks or other potential ignition sources. Do not handle or store with oxidizing agents. Avoid breathing mist or vapor. Never siphon by mouth. Do not taste or swallow. Avoid contact with eyes, skin and clothing. Use gloves constructed of impervious materials and protective clothing if direct contact is anticipated. Provide ventilation to maintain exposure potential below applicable exposure levels. Avoid water contamination. Wash thoroughly after handling. Prevent contact with food or tobacco products.

When performing repairs and maintenance on contaminated equipment, keep unnecessary persons from hazard area. Eliminate heat, flame and other potential ignition sources. Drain and purge equipment, as necessary, to remove material residues. Remove contaminated clothing. Wash exposed skin thoroughly with soap and water after handling.

Do not use this material as fuel for equipment, such as portable heaters, in enclosed areas. Hazardous combustion products can cause death.

Protect the environment from releases of this material. Prevent discharges to surface waters and groundwater. Maintain handling, transfer and storage equipment in proper working order.

Misuse of empty containers can be dangerous. Empty containers may contain material residues which can ignite with explosive force. **Cutting or welding of empty containers can cause fire, explosion, or release of toxic fumes from residues.** Do not pressurize or expose empty containers to open flame, sparks, or heat. Keep container closed and drum bungs in place. All label warnings and precautions must be observed. Return empty drums to a qualified reconditioner. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling, or disposing of empty containers and/or waste residues of this material.

Storage

Store in a cool, dry, well-ventilated place. Keep containers tightly closed. Do not store this product near heat, flame or other potential ignition sources. Do not store with oxidizers. Do not store this product in unlabeled containers. Do not puncture or incinerate containers. Ground all equipment containing this material. All electrical equipment in areas where this material is stored or handled must meet all applicable requirements of the NFPA's National Electrical Code (NEC). Store and transport in accordance with all applicable laws.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls

Provide ventilation or other engineering controls to keep the airborne concentrations of vapor or mists below the applicable workplace exposure limits indicated below. All electrical equipment should comply with the National Electric Code. An emergency eye wash station and safety shower should be located near the work-station.

Personal Protective Equipment

Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.

Eye Protection Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Chemical goggles should be worn during transfer operations or when there is a likelihood of misting, splashing, or spraying of this material. A suitable emergency eye wash water and safety shower should be located near the work station.

Hand Protection Avoid skin contact. Use heavy duty gloves constructed of chemical resistant materials such as Viton® or heavy nitrile rubber. Wash hands with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities or leaving work. DO NOT use gasoline, kerosene, solvents or harsh abrasives as skin cleaners.

Body Protection Avoid skin contact. Wear long-sleeved fire-retardant garments (e.g., Nomex®) while working with flammable and combustible liquids. Additional chemical-resistant protective gear may be required if splashing or spraying conditions exist. This may include an apron, boots and additional facial protection. If product comes in contact with clothing, immediately remove soaked clothing and shower. Promptly remove and discard contaminated leather goods.

Respiratory Protection Airborne concentration will determine the level of respiratiory protection required. Respiratory protection is normally not required unless the product is heated or misted. For known or anticipated vapor or mist concentrations above the occupational exposure guidelines (see below), use a NIOSH-approved organic vapor respirator equipped with a dust/mist prefilter if adequate protection is provided. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).

General Comments Warning! Use of this material in spaces without adequate ventilation may result in generation of hazardous levels of combustion products and/or inadequate oxygen levels for breathing. Odor is an inadequate warning for hazardous conditions.

Occupational Exposure Guidelines

Substance	Applicable Workplace Exposure Levels
Nonane, all isomers	**ACGIH (United States).** TWA: 200 ppm 8 hour(s).
Ethylmethylbenzene, all isomers	Not available.
Diesel exhaust particulate	Not available.
Trimethylbenzenes, all isomers	**ACGIH (United States).** TWA: 25 ppm 8 hour(s).
Naphthalene	**ACGIH (United States). Skin** TWA: 10 ppm 8 hour(s). STEL: 15 ppm 15 minute(s). **OSHA (United States).** TWA: 10 ppm 8 hour(s).
1, 2, 4 Trimethylbenzene	Not available.
Cumene	**ACGIH (United States).** TWA: 50 ppm 8 hour(s). **OSHA (United States). Skin** TWA: 50 ppm 8 hour(s).
Ethylbenzene	**ACGIH (United States).** TWA: 100 ppm 8 hour(s). STEL: 125 ppm 15 minute(s). **OSHA (United States).** TWA: 100 ppm 8 hour(s).
Xylene, all isomers	**ACGIH (United States).** TWA: 100 ppm 8 hour(s). STEL: 150 ppm 15 minute(s). **OSHA (United States).** TWA: 100 ppm 8 hour(s).
Sulfur	**ACGIH (United States, 1996).**

	TWA: 2 ppm STEL: 5 ppm **OSHA (United States).** TWA: 5 ppm **NIOSH** TWA: 2 ppm STEL: 5 ppm
Benzene	**ACGIH (United States). Skin** TWA: 0.5 ppm 8 hour(s). STEL: 2.5 ppm 15 minute(s). **OSHA (United States). Skin Notes: See Table Z-2 for exclusions in 20 CFR 1910.1028 to the PEL.** TWA: 1 ppm 8 hour(s). STEL: 5 ppm 15 minute(s).
Toluene	**ACGIH (United States). Skin** TWA: 20ppm 8 hour(s). **OSHA (United States).** TWA: 200 ppm 8 hour(s). CEIL: 300 ppm PEAK: 500 ppm
Middle distillates, petroleum	**ACGIH TLV (United States).** TWA: 100 ppm 8 hour(s).
Kerosene	**NIOSH REL (United States).** TWA: 100 mg/m^3 8 hour(s).
Hydrodesulfurized Kerosine (Petroleum)	Not available.
Hydrodesulfurized middle distillate (petroleum)	Not available.
Straight-run middle distillate (petroleum)	**ACGIH (United States, 1998). Skin** TWA: 100 mg/m^3
Fuel Oil, No. 2	Not available.
Distillates, petroleum, hydrodesulfurized light catalytic cracked	Not available.
Middle distillates, petroleum	Not available.
Distillates, petroleum, light catalytic cracked	Not available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (TYPICAL)

Physical State	Liquid.	**Color**	Red.	**Odor**	Characteristic, Kerosene-like.
Specific Gravity	0.84 (AP Water = 1)	**pH**	Not Applicable.	**Vapor Density**	AP 5 (Air = 1)
Boiling Range	AP 154°C (AP 309°F) to AP 371° C (AP 700° F)			**Melting/Freezing Point**	Not available.
Vapor Pressure	<0.3 kPa (<2 mm Hg) (at 20°C)			**Volatility**	AP 840 g/l VOC (W%) (ASTM D2369) =
Solubility in Water	Very slightly soluble in cold water.			**Viscosity (cSt @ 40°C)**	AP 3
Flash Point	Closed cup: AP 52°C (AP 125°F). (Pensky-Martens.)				
Additional Properties	Density = AP 7.0 lbs/gal.; Viscosity (ASTM D2161) = 30 - 40 SUS @ 100° F				

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability Stable. **Hazardous Polymerization** Not expected to occur.

Conditions to Avoid Keep away from heat, flame and other potential ignition sources. Keep away from strong oxidizing conditions and agents.

Materials Incompatibility Strong acids, alkalies, and oxidizers such as liquid chlorine, other halogens, hydrogen peroxide and oxygen.

Hazardous Decomposition Products No additional hazardous decomposition products were identified other than the combustion products identified in Section 5 of this MSDS.

SECTION 11. TOXICOLOGICAL INFORMATION

For other health-related information, refer to the Emergency Overview on Page 1 and the Hazards Identification in Section 3 of this MSDS.

Toxicity Data

Diesel exhaust particulate
Lung tumor and lymphomas were identified in rats and mice exposed to unflitered diesel fuel exhaust in chronic inhalation studies. Further, epidemiological studies have identified increase incidences of lung cancer in US railroad workers and bladder cancer in bus and truck drivers possibly associated with exposure to diesel engine exhaust. NTP has determined that exposure to diesel exhaust particulates, a complex mixture of combustion products of diesel fuel, is reasonably anticipated to be a human carcinogen. In addition, NIOSH has identified complete diesel exhaust as a potential carcinogen.

Trimethylbenzenes, all isomers
Studies of Workers:
Levels of total hydrocarbon vapors present in the breathing atmosphere of these workers ranged from 10 to 60 ppm. The TCLo for humans is 10 ppm, with somnolence and respiratory tract irritation noted.

Studies in Laboratory Animals:
In inhalation studies with rats, four of ten animals died after exposures of 2400 ppm for 24 hours. An oral dose of 5 mL/kg resulted in death in one of ten rats. Minimum lethal intraperitoneal doses were 1.5 to 2.0 mL/kg in rats and 1.13 to 12 mL/kg in guinea pigs. Mesitylene (1, 3, 5 Trimethylbenzene) inhalation at concentrations of 1.5, 3.0, and 6.0 mg/L for six hours was associated with dose-related changes in white blood cell counts in rats. No significant effects on the complete blood count were noted with six hours per day exposure for five weeks, but elevations of alkaline phosphatase and SGOT were observed. Central nervous system depression and ataxia were noted in rats exposed to 5,100 to 9,180 ppm for two hours.

Naphthalene
Studies in Humans Overexposed to Naphthalene:
Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from over-exposure to naphthalene. Persons with Glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have also been reported from over-exposure to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect.

Studies in Laboratory Animals:
Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial

and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) *in vitro*.

Ethylbenzene
Effects from Acute Exposure:
ORAL (LD50), Acute: 3,500 mg/kg [Rat].
DERMAL (LD50), Acute: 17,800 uL/kg [Rabbit].
INTRAPERITONEAL (LD50), Acute: 2,624 mg/kg [Rat].

Effects from Prolonged or Repeated Exposure:
Findings from a 2-year inhalation study in rodents conducted by NTP were as follows: Effects were observed only at the highest exposure level (750 ppm). At this level the incidence of renal tumors was elevated in male rats (tubular carcinomas) and female rats (tubular adenomas). Also, the incidence of tumors was elevated in male mice (alveolar and bronchiolar carcinomas) and female mice (hepatocellular carcinomas). IARC has classified ethyl benzene as "possibly carcinogenic to humans" (Group 2B). Studies in laboratory animals indicate some evidence of post-implantation deaths following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate limited evidence of renal malformations, resorptions, and developmental delays following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate some evidence of adverse effects on the liver, kidney, thyroid, and pituitary gland.

Middle distillates, petroleum
The products represented by this MSDS contain a mixture of petroleum hydrocarbons commonly referred to as "middle distillates." Laboratory data have associated some middle distillates with skin cancer when the material is applied repeatedly over the lifetime of the test animal. Middle distillates similar to the products represented by this MSDS have been associated with liver and kidney damage in subchronic (90-day) inhalation studies of male rats. The relevance of these findings to human health is unclear.

Hydrodesulfurized middle distillate (petroleum)
INHALATION LC50, Acute: 4.6 to 7.64 mg/L for four hours [Rat] - Dyspnea, nasal discharge, alopecia and excessive salivation.
ORAL LD50, Acute >500 g/kg [Rat Screening Level] Diarrhea, hyperactivity, ptosis and somnolence.
DERMAL LD50, Acute: >2,000 mg/kg [Rabbit Screening Level]
BUEHLER DERMAL, Acute: Non-sensitizing [Guinea Pig].
14-Day DERMAL, Subchronic: 0.05 ml/kg applied 3 times per week [Mouse, Human skin grafted to Athymic nude Mice] - Irritation and epidermal hyperplasia.
62-Week DERMAL, Chronic: 0.05 ml/kg applied 3 times per week [Mouse] - Extreme skin irritation; moderate increase in contact-point skin tumors.

Straight-run middle distillate (petroleum)
INHALATION, LC50, Acute: 1.72 mg/L for four hours [Male Rat].
INHALATION, LC50, Acute: 1.82 mg/L for 4 hours [Female Rat].
ORAL, LD50, Acute: >5,000 mg/kg [Rat screening level] - Diarrhea, hypoactivity and somnolence.
DERMAL, LD50, Acute: >2,000 mg/kg [Rabbit screen].
BUEHLER DERMAL, Acute: Non-sensitizing [Guinea Pig].
28-Day DERMAL, Subchronic: Moderate irritation at 200 to 2,000 mg/kg with no other treatment-related clinical effects observed.

Fuel Oil, No. 2
ORAL LD50, Acute: 12,000 to 17,500 mg/kg or 9.0 ml/kg [Rat]
DERMAL LD50, Acute: >5.0 ml/kg [Rabbit screen level].
DRAIZE EYE, Acute: Mild irritant [Rabbit]
DRAIZE DERMAL, Acute: Severe skin irritant [Rabbit].
BUEHLER DERMAL, Acute: Non-sensitizing [Guinea Pig]
14-Day DERMAL, Sub-chronic: 0% and 67% mortality at 4.0 and 8.0 ml/kg [Rabbit]
62-Week DERMAL, Chronic: 0.05 ml/kg 3x/week [Mouse] - Extreme skin irritation.
97-Week DERMAL, Chronic: 243 g/kg applied 3x/week [Mouse] - Extreme skin irritation.

Moderate increase in contact-point skin tumors.
MUTAGENICITY:
Modified Ames Assay: Negative. [Salmonella typhimurium]
In-vitro SCE Ovary Assay: Negative. [Chinese Hamster]
In-vitro Lymphoma Assay: Negative. [Mouse]
In-vivo Dominant Lethal Assay: Negative. [Mouse]
In-vivo Bone Marrow Assay: Clastogenic at 2.0 ml/kg and 6.0 ml/kg [Rat]

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Freshwater Toxicity:
Concentration: 2400 ppm Exposure: 48 hrs. Species: Juven. Am. Shad (*Squalius cephalus*) Effect: TLM
Concentration: >127 ppm Exposure: 96 hrs. Species: Bluegill (*Lepomis macrochirus*) Effect: LC50

Saltwater Toxicity
Concentration: 10 ppm Exposure: 96 hrs. Species: Menhaden (*Brevoortia patronus*) Effect: LC50
Concentration: 10 ppm Exposure: 96 hrs. Species: Grass Shrimp Effect: LC50

Environmental Fate

If spilled, this material will normally evaporate. Hydrocarbon components may contribute to atmospheric smog. If released to the subsoils, petroleum middle distillate fuels will strongly adsorb to soils. Groundwater should be considered as an exposure pathway. Liquid and vapor can migrate through the subsurface and preferential pathways (such as utility line backfill) to downgradient receptors.

Middle distillates are potentially toxic to freshwater and saltwater ecosystems. Distillate fuels will normally float on water. In stagnant or slow-flowing waterways, a hydrocarbon layer can cover a large surface area. As a result, this oil layer can limit or eliminate natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway can cause a fish kill or create an anaerobic environment. Also, this coating action can also kill plankton, algae, and water birds.

SECTION 13. DISPOSAL CONSIDERATIONS

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition.

Maximize material recovery for reuse or recycling. Recovered non-usable material may be regulated by US EPA as a hazardous waste due to its ignitibility (D001) and/or its toxic (D018) characteristics. In addition, conditions of use may cause this material to become a hazardous waste, as defined by Federal or State regulations. It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal. Transportation, treatment, storage, and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR Parts 260 through 271). Contact your regional US EPA office for guidance concerning case specific disposal issues. State and/or local regulations might be even more restrictive.

SECTION 14. TRANSPORT INFORMATION

The shipping description below may not represent requirements for all modes of transportation, shipping methods or locations outside of the United States.

US DOT Status A U.S. Department of Transportation (DOT) regulated material. The following U. S. DOT hazardous materials shipping description applies to bulk packaged material that is transported by highway or rail. Alternate shipping descriptions may be required for product transported by marine vessel, air or other method and for non-bulk packaged material.

Proper Shipping Name Fuel Oil No. 2, Combustible liquid, NA1993, PG III

Hazard Class DOT Class: Combustible liquid with a flash point greater than 37.8°C (100°F).

Packing Group III

UN/NA Number NA 1993

Reportable Quantity A Reportable Quantity (RQ) has not been established for this material.

Placard(s)

Emergency Response Guide No. 128

MARPOL III Status Not a DOT "Marine Pollutant" per 49 CFR 171.8.

SECTION 15. REGULATORY INFORMATION

TSCA Inventory This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.

SARA 302/304 Emergency Planning and Notification The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.

SARA 311/312 Hazard Identification The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories:

fire, Acute (Immediate) Health Hazard, Chronic (Delayed) Health Hazard

SARA 313 Toxic Chemical Notification and Release Reporting This product contains the following components in concentrations above *de minimis* levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 of SARA:
Naphthalene [CAS No.: 91-20-3] Concentration: 2%
Ethylbenzene [CAS No.: 100-41-4] Concentration: 0.9%

CERCLA The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQ's) listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. Chemical substances present in this product or refinery stream that may be subject to this statute are:
Naphthalene [CAS No.: 91-20-3] RQ = 100 lbs. (45.36 kg) Concentration: 2%
Cumene [CAS No.: 98-82-8] RQ = 5000 lbs. (2268 kg) Concentration: 0.9%
Ethylbenzene [CAS No.: 100-41-4] RQ = 1000 lbs. (453.6 kg) Concentration: 0.9%
Xylene, all isomers [CAS No.: 1330-20-7] RQ = 100 lbs. (45.36 kg) Concentration: 0.9%
Benzene [CAS No.: 71-43-2] RQ = 10 lbs. (4.536 kg) Concentration: 0.045%

Clean Water Act (CWA) This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.

California Proposition 65	This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5): Diesel exhaust particulate Naphthalene: 1.98% Ethylbenzene: 0.9% Benzene: 0.045% Toluene: 0.045%
New Jersey Right-to-Know Label	Fuel Oil
Additional Remarks	Federal Hazardous Substances Act, related statutes, and Consumer Product Safety Commission regulations, as defined by 16 CFR 1500.14(b)(3) and 1500.83(a)(13): This product contains "Petroleum Distillates" which may require special labeling if distributed in a manner intended or packaged in a form suitable for use in the household or by children. Precautionary label dialogue should display the following: **DANGER: Contains Petroleum Distillates! Harmful or fatal if swallowed! Call Physician Immediately. KEEP OUT OF REACH OF CHILDREN!**

SECTION 16. OTHER INFORMATION

Refer to the top of Page 1 for the HMIS and NFPA Hazard Ratings for this product.

REVISION INFORMATION

Version Number	3.1
Revision Date	12/31/2007

ABBREVIATIONS

AP: Approximately EQ: Equal >: Greater Than <: Less Than NA: Not Applicable ND: No Data NE: Not Establishe

ACGIH: American Conference of Governmental Industrial Hygienist

AIHA: American Industrial Hygiene Associatior

IARC: International Agency for Research on Cancer

NTP: National Toxicology Program

NIOSH: National Institute of Occupational Safety and Health

OSHA: Occupational Safety and Health Administration

NPCA: National Paint and Coating Manufacturers Association

HMIS: Hazardous Materials Information System

NFPA: National Fire Protection Association

EPA: US Environmental Protection Agency

DISCLAIMER OF LIABILITY

THE INFORMATION IN THIS MSDS WAS OBTAINED FROM SOURCES WHICH WE BELIEVE ARE RELIABLE. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESSED OR IMPLIED REGARDING ITS CORRECTNESS. SOME INFORMATION PRESENTED AND CONCLUSIONS DRAWN HEREIN ARE FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE SUBSTANCE ITSELF. THIS MSDS WAS PREPARED AND IS TO BE USED ONLY FOR THIS PRODUCT. IF THE PRODUCT IS USED AS A COMPONENT IN ANOTHER PRODUCT, THIS MSDS INFORMATION MAY NOT BE APPLICABLE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION OR PRODUCTS FOR THEIR PARTICULAR PURPOSE.

THE CONDITIONS OR METHODS OF HANDLING, STORAGE, USE, AND DISPOSAL OF THE PRODUCT ARE BEYOND OUR CONTROL AND MAY BE BEYOND OUR KNOWLEDGE. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.

***** END OF MSDS *****

CITGO No. 1 Diesel Fuel, All Grades
Material Safety Data Sheet

CITGO Petroleum Corporation
P.O. Box 4689
Houston, TX 77210

MSDS No. AG1DF
Revision Date 9/9/2011

IMPORTANT: This MSDS is prepared in accordance with 29 CFR 1910.1200. Read this MSDS before transporting, handling, storing or disposing of this product and forward this information to employees, customers and users of this product.

Hazard Rankings

	HMIS	NFPA
Health Hazard	* 2	1
Fire Hazard	2	2
Reactivity	0	0

* = Chronic Health Hazard

Emergency Overview

Physical State Liquid.
Color Clear to light amber. **Odor** Characteristic, kerosene-like.

WARNING!
Combustible liquid and vapor. - Can cause flash fire.
Harmful or fatal if swallowed - can enter lungs and cause damage.
Mist or vapor can irritate the respiratory tract.
Liquid contact can cause eye or skin irritation.
Overexposure can cause central nervous system (CNS) depression and/or other target organ effects.
Harmful to aquatic organisms.
Long-term exposure to diesel engine exhaust may cause cancer.

Protective Equipment

Minimum Recommended
See Section 8 for Details

SECTION 1. PRODUCT IDENTIFICATION

Trade Name	CITGO No. 1 Diesel Fuel, All Grades	**Technical Contact**	(800) 423-8434
Product Number	Various	**Medical Emergency**	(832) 486-4700
CAS Number	Various	**CHEMTREC Emergency (United States Only)**	(800) 424-9300
Product Family	Fuels.		
Synonyms	No. 1 Ultra Low Sulfur Diesel, Diesel Fuel No. 1; K-1, Fuel Oil; Grade 1 Distilate Fuel; Kerosene, Low Sulfur Diesel Fuel		

SECTION 2. COMPOSITION

This product may be composed, in whole or in part, of any of the following refinery streams:

Hydrodesulfurized Kerosine (Petroleum) [CAS No.: 64742-81-0]
Distillates (petroleum), hydrotreated light [CAS No.: 64742-47-8]
Hydrodesulfurized middle distillate (petroleum) [CAS No.: 64742-80-9]
Distillates, petroleum, hydrodesulfurized light catalytic cracked [CAS No.: 68333-25-5]
Kerosene [CAS No.: 8008-20-6]

This product contains the following components:

Component Name(s)	CAS Registry No.	Concentration (%)

Nonane, all isomers	Mixture.	10 - 30
Ethylmethylbenzene, all isomers	25550-14-5	1 - 3
Naphthalene	91-20-3	0 - 3
Trimethylbenzenes, all isomers	25551-13-7	0 - 2
Biphenyl (Diphenyl)	92-52-4	0 - 2
Ethylbenzene	100-41-4	0 - 1
Xylene, all isomers	1330-20-7	0 - 1
1, 2, 4 Trimethylbenzene	95-63-6	0 - 1
Cumene	98-82-8	0 - 1

SECTION 3. HAZARDS IDENTIFICATION

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

Major Route(s) of Entry Skin contact. Eye contact. Inhalation. Ingestion.

Signs and Symptoms of Acute Exposure

Inhalation

Breathing high concentrations may be harmful. Mist or vapor can irritate the throat and lungs. Breathing this material may cause central nervous system depression with symptoms including nausea, headache, dizziness, fatigue, drowsiness, or unconsciousness.

Eye Contact

This material can cause eye irritation with tearing, redness, or a stinging or burning feeling. Further, it can cause swelling of the eyes with blurred vision. Effects may become more serious with repeated or prolonged contact.

Skin Contact

May cause mild skin irritation with redness and/or an itching or burning feeling. Effects may become more serious with repeated or prolonged contact. It is likely that some components of this material are able to pass into the body through the skin and may cause similar effects as from breathing or swallowing it.

Ingestion

Swallowing this material may be harmful.
Swallowing this material may cause stomach or intestinal upset with pain, nausea, and/or diarrhea.
This material can get into the lungs during swallowing or vomiting. Small amounts in the lungs can cause lung damage, possibly leading to chronic lung dysfunction or death.
Swallowing this material may cause effects similar to those described in the inhalation section (see "inhalation" above).

Chronic Health Effects Summary

Prolonged and/or repeated contact may cause skin irritation and inflammation. Symptoms include defatting, redness, blistering, lesions, and scaly dermatitis.

Chronic effects of ingestion and subsequent aspiration into the lungs may cause pneumatocele (lung cavity) formation and chronic lung dysfunction.

Reports have associated repeated and prolonged occupational overexposure to light petroleum products with irreversible brain and nervous system damage (sometimes referred to as "Solvent or Painter's Syndrome"). Intentional misuse by deliberately concentrating and inhaling this product may be harmful or fatal.

Prolonged or repeated overexposure to xylene, a component of this product, has been associated with hearing damage in laboratory animals.

This material (or a component) may cause harm to the human fetus based on tests with laboratory animals. This material, or a component of this material, has been shown to cause cancer in laboratory animals. The relevance of this to humans is not clear.

See Toxicological Information (Section 11)

Conditions Aggravated by Exposure

Medical conditions aggravated by exposure to this material may include skin disorders, chronic respiratory diseases, neurological conditions, liver or kidney dysfunction.

Target Organs

May cause damage to the following organs: kidneys, liver, upper respiratory tract, skin, eyes, central nervous system (CNS).

Carcinogenic Potential This material may contain ethylbenzene, cumene and naphthalene at concentrations above 0.1%. IARC has identified ethylbenzene, cumene and naphthalene as possibly carcinogenic to humans (Group 2B) based on laboratory animal studies. The NTP has determined that naphthalene is *reasonably anticipated to be a human carcinogen* based on sufficient evidence from studies in experimental animals. NTP has determined that exposure to diesel exhaust particulates, a complex mixture of combustion products of diesel fuel, is reasonably anticipated to be a human carcinogen.

OSHA Hazard Classification is indicated by an "X" in the box adjacent to the hazard title. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

OSHA Health Hazard Classification				OSHA Physical Hazard Classification					
Irritant	X	Sensitizer		Combustible	X	Explosive		Pyrophoric	
Toxic		Highly Toxic		Flammable		Oxidizer		Water-reactive	
Corrosive		Carcinogenic		Compressed Gas		Organic Peroxide		Unstable	

SECTION 4. FIRST AID MEASURES

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

Inhalation Move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If breathing is difficult, 100 percent humidified oxygen should be administered by a qualified individual. Seek medical attention immediately. Keep the affected individual warm and at rest.

Eye Contact Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water for at least 15 minutes while occasionally lifting and lowering eyelids. Do not use eye ointment unless directed to by a physician. Seek medical attention if excessive tearing, irritation, or pain persists.

Skin Contact Remove contaminated shoes and clothing. Flush affected area with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. Do not use ointments. If skin surface is not damaged, clean affected area thoroughly with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists.

Ingestion Do not induce vomiting. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Never give anything by mouth to a person who is not fully conscious. Do not leave victim unattended. Seek medical attention immediately.

Notes to Physician INHALATION: Inhalation overexposure can produce toxic effects. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis. Administer supplemental oxygen with assisted ventilation, as required.

INGESTION: If ingested, this material presents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended. Consider activated charcoal and/or gastric lavage. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in a Trendelenburg and left lateral decubitus position.

CITGO Low Sulfur Kerosene, All Grades

Material Safety Data Sheet

CITGO Petroleum Corporation
P.O. Box 4689
Houston, TX 77210

MSDS No. LSKRO
Revision Date 1/17/2008

IMPORTANT: This MSDS is prepared in accordance with 29 CFR 1910.1200. Read this MSDS before transporting, handling, storing or disposing of this product and forward this information to employees, customers and users of this product.

Hazard Rankings

	HMIS	NFPA
Health Hazard	* 1	0
Fire Hazard	2	2
Reactivity	0	0

* = Chronic Health Hazard

Protective Equipment

Minimum Recommended
See Section 8 for Details

Emergency Overview

Physical State Liquid.
Color Colorless to light yellow or red. **Odor** Characteristic hydrocarbon odor.

WARNING!
Combustible liquid; vapor may cause flash fire.
Harmful or fatal if swallowed - can enter lungs and cause damage.
Mist or vapor can irritate the respiratory tract.
Liquid contact can cause eye or skin irritation.
May be harmful if inhaled or absorbed through the skin.
Overexposure can cause central nervous system (CNS) depression and/or other target organ effects.
Spills may create a slipping hazard.

SECTION 1. PRODUCT IDENTIFICATION

Trade Name	CITGO Low Sulfur Kerosene, All Grades	**Technical Contact**	(832) 486-5940 or (918) 495-5939
Product Number	LSKRO	**Medical Emergency**	(832) 486-4700
CAS Number	Mixture.	**CHEMTREC Emergency (United States Only)**	(800) 424-9300
Product Family	Kerosene		
Synonyms	Kerosene, Kerosine		

SECTION 2. COMPOSITION

Component Name(s)	CAS Registry No.	Concentration (%)
Hydrodesulfurized Kerosine (Petroleum)	64742-81-0	0-100
Hydrodesulfurized Middle Distillate (Petroleum)	64742-80-9	0-100
C10-C20 Petroleum Hydrocarbons	64741-44-2	0-100
Hydrodesulfurized Light Catalytic Cracked Distillate (Petroleum)	68333-25-5	0-100
Kerosene (Petroleum)	8008-20-6	0-100
Naphthalene	91-20-3	0 - 3
Ethylbenzene	100-41-4	0 - 1

SECTION 3. HAZARDS IDENTIFICATION

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

Major Route(s) of Entry Skin contact. Inhalation.

Signs and Symptoms of Acute Exposure

Inhalation

Breathing mist or vapors concentrations well above occupational exposure levels can irritate the mucous membranes of the nose, throat, bronchi, and lungs and can cause transient central nervous system (CNS) depression. Signs and symptoms of CNS depression include headache, dizziness, nausea, blurred vision, slurred speech, flushed face, confusion, weakness, fatigue or loss of consciousness depending upon the concentration and/or duration of exposure. In severe cases, overexposure by inhalation can cause convulsions, coma, or death.

Eye Contact

This product can cause eye irritation with short-term contact with liquid, mists or vapor. Symptoms include stinging, watering, redness, and swelling. In severe cases, permanent eye damage can result.

Skin Contact

Animal test results on similar materials suggest that this product can cause moderate to severe skin irritation. Symptoms include redness, itching, and burning of the skin. Also, certain components of this material may be absorbed through the skin and produce CNS depression effects (see "Inhalation" above). If the skin is damaged, absorption increases. Prolonged and/or repeated contact may cause severe dermatitis and/or more serious skin disorders. Chronic symptoms may include drying, swelling, scaling, blistering, cracking, and/or severe tissue damage.

Ingestion

If swallowed, this material may irritate the mouth, throat, and esophagus. It can be absorbed into the blood stream through the stomach and intestinal tract. Symptoms may include a burning sensation of the mouth and esophagus, nausea and vomiting. In addition, it can cause central nervous system effects characterized by dizziness, staggering, drowsiness, delirium and/or loss of consciousness.

Because of the low viscosity, this material can enter the lungs directly by aspiration during swallowing or subsequent vomiting. Aspiration of a small amount of liquid can cause severe lung damage and/or death.

Chronic Health Effects Summary

Secondary effects of ingestion and subsequent aspiration into the lungs may cause pneumatocele (lung cavity) formation and chronic lung dysfunction.

This product contains petroleum middle distillates similar to those shown to produce skin tumors on laboratory rodents following repeated application. All tumors appeared during the latter portion of the typical 2-year lifespan of the animals. Certain studies have shown that washing the exposed skin of the test animal with soap and water between treatments greatly reduces the potential tumorigenic effects. These data suggest that good personal hygiene is effective in reducing the risk of this potential adverse health effect.

This material and/or its components have been associated with developmental toxicity, reproductive toxicity, genotoxicity, immunotoxicity, and/or carcinogenicity. Refer to Section 11 of this MSDS for additional health-related information.

Conditions Aggravated by Exposure

Medical conditions aggravated by exposure to this material may include skin disorders, chronic respiratory diseases, neurological conditions, liver or kidney dysfunction.

Target Organs

May cause damage to the following organs: kidneys, liver, upper respiratory tract, skin.

Carcinogenic Potential

This material may contain ethylbenzene and naphthalene at concentrations above 0.1%. IARC has identified ethylbenzene and naphthalene as possibly carcinogenic to humans (Group 2B) based on laboratory animal studies. The NTP has determined that naphthalene is *reasonably anticipated to be a human carcinogen* based on sufficient evidence from studies in experimental animals.

OSHA Hazard Classification is indicated by an "X" in the box adjacent to the hazard title. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

OSHA Health Hazard Classification				OSHA Physical Hazard Classification					
Irritant	X	Sensitizer		Combustible	X	Explosive		Pyrophoric	
Toxic		Highly Toxic		Flammable		Oxidizer		Water-reactive	
Corrosive		Carcinogenic		Compressed Gas		Organic Peroxide		Unstable	

SECTION 4. FIRST AID MEASURES

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

Inhalation Move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If breathing is difficult, 100 percent humidified oxygen should be administered by a qualified individual. Seek medical attention immediately. Keep the affected individual warm and at rest.

Eye Contact Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water for at least 15 minutes while occasionally lifting and lowering eyelids. Do not use eye ointment unless directed to by a physician. Seek medical attention if excessive tearing, irritation, or pain persists.

Skin Contact Remove contaminated shoes and clothing. Flush affected area with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. Do not use ointments. If skin surface is not damaged, clean affected area thoroughly with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists.

Ingestion Do not induce vomiting. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Never give anything by mouth to a person who is not fully conscious. Do not leave victim unattended. Seek medical attention immediately.

Notes to Physician Inhalation overexposure can produce toxic effects. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis. Vigorous anti-inflammatory/steroid treatment may be required at first evidence of upper airway or pulmonary edema. Administer 100 percent humidified supplemental oxygen with assisted ventilation, as required.

If ingested, this material presents a significant aspiration/lipoid or chemical pneumonitis hazard. As a result, induction of emesis is not recommended. Consider administration of an aqueous slurry of activated charcoal followed by a cathartic such as magnesium citrate or sorbitol. Also, treatment may involve careful gastric lavage if performed soon after ingestion or in patients who are comatose or at risk of convulsing. Protect the airway by placement in Trendelenburg and left lateral decubitus position or by cuffed endotracheal intubation. If vital signs become abnormal or symptoms develop, obtain a chest x-ray and liver function tests. Antibiotics are indicated if pulmonary bacterial infection occurs. Monitor for cardiac function and arterial blood gases in severe exposure cases.

SECTION 5. FIRE FIGHTING MEASURES

NFPA Flammability Classification NFPA Class-II combustible liquid.

Flash Point Closed cup: 38°C (100°F). (Pensky-Martens. (minimum))

Lower Flammable Limit AP 0.7 % **Upper Flammable Limit** AP 5 %

Autoignition Temperature	Not available.
Hazardous Combustion Products	Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons and trace oxides of sulfur and/or nitrogen.
Special Properties	Combustible Liquid! This material releases vapors when heated above ambient temperatures. Vapors can cause a flash fire. Vapors can travel to a source of ignition and flashback. A vapor and air mixture can create an explosion hazard in confined spaces such as sewers. Use only with adequate ventilation. If container is not properly cooled, it can rupture in the heat of a fire.
Extinguishing Media	SMALL FIRE: Use dry chemicals, carbon dioxide, foam, water fog, or inert gas (nitrogen). LARGE FIRE: Use foam, water fog, or water spray. Water fog and spray are effective in cooling containers and adjacent structures. However, water can cause frothing and/or may not extinguish the fire. Water can be used to cool the external walls of vessels to prevent excessive pressure, autoignition or explosion. DO NOT use a solid stream of water directly on the fire as the water may spread the fire to a larger area.
Protection of Fire Fighters	Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles. Cover pooling liquid with foam. Containers can build pressure if exposed to radiant heat; cool adjacent containers with flooding quantities of water until well after the fire is out. Withdraw immediately from the area if there is a rising sound from a venting safety device or discoloration of vessels, tanks, or pipelines. Be aware that burning liquid will float on water. Notify appropriate authorities of potential fire and explosion hazard if liquid enter sewers or waterways.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

Combustible Liquid! Release can result in a fire hazard. Evacuate all non-essential personnel from release area. Establish a regulated zone with site control and security. Eliminate all ignition sources. Stop the leak if it can done without risk. A vapor-suppressing foam may be used to reduce vapors. Properly bond or ground all equipment used when handling this material. Avoid skin contact. Do not walk through spilled material. Verify that responders are properly trained and wearing appropriate personnel protective equipment. Dike far ahead of a liquid spills. Do not allow released material to entry waterways, sewers, basements, or confined areas. This material will float on water. Absorb or cover with dry earth, sand or other non-combustible material. Use clean, non-sparking tools to collect absorbed material. Place spent sorbent materials, free liquids and other clean-up debris into proper waste containers for appropriate disposal. Certain releases must be reported to the National Response Center (800/424-8802) and state or regulatory authorities. Comply with all laws and regulations.

SECTION 7. HANDLING AND STORAGE

Handling

Combustible Liquid!

A static electrical charge can accumulate when this material is flowing through pipes, nozzles or filters and when it is agitated. A static spark discharge can ignite accumulated vapors particularly during dry weather conditions. Always bond receiving containers to the fill pipe before and during loading. Always keep nozzle in contact with the container throughout the loading process. Do not fill any portable container in or on a vehicle. Special precautions, such as reduced loading rates and increased monitoring, must be observed during "switch loading" operations (i.e., loading this material in tanks or shipping compartments that previously containing gasoline or similar low flash point products).

Fire hazard increases as product temperature approaches its flash point. Keep container closed and drum bungs in place. Remove spillage immediately from walking areas. Do not handle or store near heat, sparks or other potential ignition sources. Do not handle or store

with oxidizing agents. Avoid breathing mist or vapor. Never siphon by mouth. Do not taste or swallow. Avoid contact with eyes, skin and clothing. Use gloves constructed of impervious materials and protective clothing if direct contact is anticipated. Provide ventilation to maintain exposure potential below applicable exposure levels. Avoid water contamination. Wash thoroughly after handling. Prevent contact with food or tobacco products.

When performing repairs and maintenance on contaminated equipment, keep unnecessary persons from hazard area. Eliminate heat, flame and other potential ignition sources. Drain and purge equipment, as necessary, to remove material residues. Remove contaminated clothing. Wash exposed skin thoroughly with soap and water after handling.

Storage

Store in a cool, dry, well-ventilated place. Keep containers tightly closed. Do not store this product near heat, flame or other potential ignition sources. Do not store with oxidizers. Do not store this product in unlabeled containers. Do not puncture or incinerate containers. Ground all equipment containing this material. All electrical equipment in areas where this material is stored or handled must meet all applicable requirements of the NFPA's National Electrical Code (NEC). Store and transport in accordance with all applicable laws.

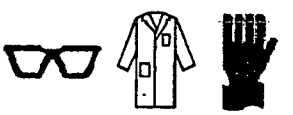
SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls

Provide ventilation or other engineering controls to keep the airborne concentrations of vapor or mists below the applicable workplace exposure limits indicated below. All electrical equipment should comply with the National Electric Code. An emergency eye wash station and safety shower should be located near the work-station.

Personal Protective Equipment

Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.



Eye Protection

Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Chemical goggles should be worn during transfer operations or when there is a likelihood of misting, splashing, or spraying of this material. A suitable emergency eye wash water and safety shower should be located near the work station.

Hand Protection

Avoid skin contact. Use heavy duty gloves constructed of chemical resistant materials such as Viton® or heavy nitrile rubber. Wash hands with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities or leaving work. DO NOT use gasoline, kerosene, solvents or harsh abrasives as skin cleaners.

Body Protection

Avoid skin contact. Wear long-sleeved fire-retardant garments (e.g., Nomex®) while working with flammable and combustible liquids. Additional chemical-resistant protective gear may be required if splashing or spraying conditions exist. This may include an apron, boots and additional facial protection. If product comes in contact with clothing, immediately remove soaked clothing and shower. Promptly remove and discard contaminated leather goods.

Respiratory Protection

Airborne concentration will determine the level of respiratory protection required. Respiratory protection is normally not required unless the product is heated or misted. For known or anticipated vapor or mist concentrations above the occupational exposure guidelines (see below), use a NIOSH-approved organic vapor respirator equipped with a dust/mist prefilter if adequate protection is provided. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).

General Comments

Warning! Use of this material in spaces without adequate ventilation may result in generation of hazardous levels of combustion products and/or inadequate oxygen levels for breathing. Odor is an inadequate warning for hazardous conditions.

Occupational Exposure Guidelines

Substance	Applicable Workplace Exposure Levels
Kerosene	**NIOSH REL (United States).** TWA: 100 mg/m³ 8 hour(s).
Hydrodesulfurized Kerosine (Petroleum)	Not available.
Hydrodesulfurized middle distillate (petroleum)	Not available.
Straight-run middle distillate (petroleum)	**ACGIH (United States, 1998). Skin** TWA: 100 mg/m³
Distillates, petroleum, hydrodesulfurized light catalytic cracked	Not available.
Nonane, all isomers	**ACGIH (United States).** TWA: 200 ppm 8 hour(s).
Ethylmethylbenzene, all isomers	Not available.
Naphthalene	**ACGIH (United States). Skin** TWA: 10 ppm 8 hour(s). STEL: 15 ppm 15 minute(s). **OSHA (United States).** TWA: 10 ppm 8 hour(s).
Trimethylbenzenes, all isomers	**ACGIH (United States).** TWA: 25 ppm 8 hour(s).
Xylene, all isomers	**ACGIH (United States).** TWA: 100 ppm 8 hour(s). STEL: 150 ppm 15 minute(s). **OSHA (United States).** TWA: 100 ppm 8 hour(s).
Ethylbenzene	**ACGIH (United States).** TWA: 100 ppm 8 hour(s). STEL: 125 ppm 15 minute(s). **OSHA (United States).** TWA: 100 ppm 8 hour(s).
Middle distillates, petroleum	Not available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (TYPICAL)

Physical State	Liquid.	**Color**	Colorless to light yellow or red.	**Odor**	Characteristic hydrocarbon odor.
Specific Gravity	AP 0.82 (Water = 1)	**pH**	Not Applicable.	**Vapor Density**	AP 4 (Air = 1)
Boiling Range	>150°C (>302°F)			**Melting/Freezing Point**	AP -32°C (-26°F)
Vapor Pressure	<0.3 kPa (<2 mm Hg) (at 20°C)			**Volatility**	AP 825 g/l VOC (W%) (ASTM D2369) =
Solubility in Water	Very slightly soluble in cold water.			**Viscosity (cSt @ 40°C)**	not available
Flash Point	Closed cup: 38°C (100°F). (Pensky-Martens. (minimum))				
Additional Properties	Viscosity (ASTM D2161) = 30 - 40 SUS @ 100° F				

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability Stable. **Hazardous Polymerization** Not expected to occur.

Conditions to Avoid Keep away from heat, flame and other potential ignition sources. Keep away from strong oxidizing conditions and agents.

Materials Incompatibility Strong acids, alkalies, and oxidizers such as liquid chlorine, other halogens, hydrogen peroxide and oxygen.

Hazardous Decomposition Products No additional hazardous decomposition products were identified other than the combustion products identified in Section 5 of this MSDS.

SECTION 11. TOXICOLOGICAL INFORMATION

For other health-related information, refer to the Emergency Overview on Page 1 and the Hazards Identification in Section 3 of this MSDS.

Toxicity Data

Hydrodesulfurized middle distillate (petroleum)
INHALATION LC50, Acute: 4.6 to 7.64 mg/L for four hours [Rat] - Dyspnea, nasal discharge, alopecia and excessive salivation.
ORAL LD50, Acute >500 g/kg [Rat Screening Level] Diarrhea, hyperactivity, ptosis and somnolence.
DERMAL LD50, Acute: >2,000 mg/kg [Rabbit Screening Level]
BUEHLER DERMAL, Acute: Non-sensitizing [Guinea Pig].
14-Day DERMAL, Subchronic: 0.05 ml/kg applied 3 times per week [Mouse, Human skin grafted to Athymic nude Mice] - Irritation and epidermal hyperplasia.
62-Week DERMAL, Chronic: 0.05 ml/kg applied 3 times per week [Mouse] - Extreme skin irritation; moderate increase in contact-point skin tumors.

Straight-run middle distillate (petroleum)
INHALATION, LC50, Acute: 1.72 mg/L for four hours [Male Rat].
INHALATION, LC50, Acute: 1.82 mg/L for 4 hours [Female Rat].
ORAL, LD50, Acute: >5,000 mg/kg [Rat screening level] - Diarrhea, hypoactivity and somnolence.
DERMAL, LD50, Acute: >2,000 mg/kg [Rabbit screen].
BUEHLER DERMAL, Acute: Non-sensitizing [Guinea Pig].
28-Day DERMAL, Subchronic: Moderate irritation at 200 to 2,000 mg/kg with no other treatment-related clinical effects observed.

Naphthalene
Studies in Humans Overexposed to Naphthalene:
Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from over-exposure to naphthalene. Persons with Glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have also been reported from over-exposure to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect.

Studies in Laboratory Animals:
Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) *in vitro*.

Trimethylbenzenes, all isomers
Studies of Workers:
Levels of total hydrocarbon vapors present in the breathing atmosphere of these workers ranged from 10 to 60 ppm. The TCLo for humans is 10 ppm, with somnolence and respiratory tract irritation noted.

Studies in Laboratory Animals:
In inhalation studies with rats, four of ten animals died after exposures of 2400 ppm for 24 hours. An oral dose of 5 mL/kg resulted in death in one of ten rats. Minimum lethal intraperitoneal doses were 1.5 to 2.0 mL/kg in rats and 1.13 to 12 mL/kg in guinea pigs. Mesitylene (1, 3, 5 Trimethylbenzene) inhalation at concentrations of 1.5, 3.0, and 6.0 mg/L for six hours was associated with dose-related changes in white blood cell counts in rats. No significant effects on the complete blood count were noted with six hours per day exposure for five weeks, but elevations of alkaline phosphatase and SGOT were observed. Central nervous system depression and ataxia were noted in rats exposed to 5,100 to 9,180 ppm for two hours.

Ethylbenzene
Effects from Acute Exposure:
ORAL (LD50), Acute: 3,500 mg/kg [Rat].
DERMAL (LD50), Acute: 17,800 uL/kg [Rabbit].
INTRAPERITONEAL (LD50), Acute: 2,624 mg/kg [Rat].

Effects from Prolonged or Repeated Exposure:
Findings from a 2-year inhalation study in rodents conducted by NTP were as follows: Effects were observed only at the highest exposure level (750 ppm). At this level the incidence of renal tumors was elevated in male rats (tubular carcinomas) and female rats (tubular adenomas). Also, the incidence of tumors was elevated in male mice (alveolar and bronchiolar carcinomas) and female mice (hepatocellular carcinomas). IARC has classified ethyl benzene as "possibly carcinogenic to humans" (Group 2B). Studies in laboratory animals indicate some evidence of post-implantation deaths following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate limited evidence of renal malformations, resorptions, and developmental delays following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate some evidence of adverse effects on the liver; kidney, thyroid, and pituitary gland.

Middle distillates, petroleum
Long-term repeated (lifetime) skin exposure to similar materials has been reported to result in an increase in skin tumors in laboratory rodents. The relevance of these findings to humans is not clear at this time.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity data are not available for this product. Based on data from similar products, this material is toxic to aquatic organisms.

Environmental Fate

If spilled, this material will normally evaporate. Hydrocarbon components may contribute to atmospheric smog. If released to the subsoils, petroleum middle distillate fuels will strongly adsorb to soils. Groundwater should be considered as an exposure pathway. Liquid and vapor can migrate through the subsurface and preferential pathways (such as utility line backfill) to downgradient receptors.

Middle distillates are potentially toxic to freshwater and saltwater ecosystems. Distillate fuels will normally float on water. In stagnant or slow-flowing waterways, a hydrocarbon layer can cover a large surface area. As a result, this oil layer can limit or eliminate natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway can cause a fish kill or create an anaerobic environment. Also, this coating action can also kill plankton, algae, and water birds.

SECTION 13. DISPOSAL CONSIDERATIONS

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition.

Conditions of use may cause this material to become a hazardous waste, as defined by Federal or State regulations. It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal. Potential treatment and disposal methods include incineration. Transportation, treatment, storage and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR 260 through 40 CFR 271). Contact your regional US EPA office for guidance concerning case specific disposal issues. State and/or local regulations may be more restrictive.

SECTION 14. TRANSPORT INFORMATION

The shipping description below may not represent requirements for all modes of transportation, shipping methods or locations outside of the United States.

US DOT Status A U.S. Department of Transportation (DOT) regulated material.

Proper Shipping Name Kerosene

Hazard Class 3

Packing Group III

UN/NA Number UN 1223

Reportable Quantity A Reportable Quantity (RQ) has not been established for this material.

Placard(s)

Emergency Response Guide No. 128

MARPOL III Status Not a DOT "Marine Pollutant" per 49 CFR 171.8.

SECTION 15. REGULATORY INFORMATION

TSCA Inventory This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.

SARA 302/304 Emergency Planning and Notification The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.

SARA 311/312 Hazard Identification The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories:

fire, Acute (Immediate) Health Hazard, Chronic (Delayed) Health Hazard

SARA 313 Toxic Chemical Notification and Release Reporting This product contains the following components in concentrations above *de minimis* levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 of SARA:

Naphthalene [CAS No.: 91-20-3] Concentration: 1%

Ethylbenzene [CAS No.: 100-41-4] Concentration: 0.5%

CERCLA	The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQ's) listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. Chemical substances present in this product or refinery stream that may be subject to this statute are: Naphthalene [CAS No.: 91-20-3] RQ = 100 lbs. (45.36 kg) Concentration: 1% Xylene, all isomers [CAS No.: 1330-20-7] RQ = 100 lbs. (45.36 kg) Concentration: 0.5% Ethylbenzene [CAS No.: 100-41-4] RQ = 1000 lbs. (453.6 kg) Concentration: 0.5%
Clean Water Act (CWA)	This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.
California Proposition 65	This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5): Naphthalene: 1% Ethylbenzene: 0.5%
New Jersey Right-to-Know Label	Kerosene
Additional Remarks	Federal Hazardous Substances Act, related statutes, and Consumer Product Safety Commission regulations, as defined by 16 CFR 1500.14(b)(3) and 1500.83(a)(13): This product contains "Petroleum Distillates" which may require special labeling if distributed in a manner intended or packaged in a form suitable for use in the household or by children. Precautionary label dialogue should display the following: **DANGER: Contains Petroleum Distillates! Harmful or fatal if swallowed! Call Physician Immediately. KEEP OUT OF REACH OF CHILDREN!**

SECTION 16. OTHER INFORMATION

Refer to the top of Page 1 for the HMIS and NFPA Hazard Ratings for this product.

REVISION INFORMATION

Version Number	2.1
Revision Date	1/17/2008

ABBREVIATIONS

AP: Approximately EQ: Equal >: Greater Than <: Less Than NA: Not Applicable ND: No Data NE: Not Establishe

ACGIH: American Conference of Governmental Industrial Hygienists AIHA: American Industrial Hygiene Associatior

IARC: International Agency for Research on Cancer NTP: National Toxicology Program

NIOSH: National Institute of Occupational Safety and Health OSHA: Occupational Safety and Health Administration

NPCA: National Paint and Coating Manufacturers Association HMIS: Hazardous Materials Information System

NFPA: National Fire Protection Association EPA: US Environmental Protection Agency

DISCLAIMER OF LIABILITY

THE INFORMATION IN THIS MSDS WAS OBTAINED FROM SOURCES WHICH WE BELIEVE ARE RELIABLE. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESSED OR IMPLIED REGARDING ITS CORRECTNESS. SOME INFORMATION PRESENTED AND CONCLUSIONS DRAWN HEREIN ARE FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE SUBSTANCE ITSELF. THIS MSDS WAS PREPARED AND IS TO BE USED ONLY FOR THIS PRODUCT. IF THE PRODUCT IS USED AS A COMPONENT IN ANOTHER PRODUCT, THIS MSDS INFORMATION MAY NOT BE APPLICABLE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION OR PRODUCTS FOR THEIR

PARTICULAR PURPOSE.

THE CONDITIONS OR METHODS OF HANDLING, STORAGE, USE, AND DISPOSAL OF THE PRODUCT ARE BEYOND OUR CONTROL AND MAY BE BEYOND OUR KNOWLEDGE. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.

***** END OF MSDS *****

Attn: -19089963508
Date: Friday, February-17-2012
Date: 02:22:06 PM CST

To: -19089963508

From: CITGO MarketNet
Phone:
Fax:

Subject: MSDS Document Fax Request

Pages: 13 (including cover sheet)

CITGO Petroleum Corporation
P.O. Box 4689
Houston, TX 77210-4689
Phone: 832-486-4000

To: R. Skowronek
Fax: 9089963508
From: CITGO MarketNet®
Requested By: Judith Mann (MarketNet Userid : 226133)
Subject: MSDS Document Fax Request

Comments:

Following is the document that you requested. If this document is a Material Safety Data Sheet, it contains information relating to the OSHA Hazard Communication standard. In addition, the MSDS provides notification of SARA Section 313 "toxic chemicals" per 40 CFR 372. In order for the MSDS to serve its intended purpose, it should be forwarded to those persons in your organization who have a need for safety and environmental information.

If you are a distributor, OSHA and EPA regulations require that you provide a copy of the MSDS to your customers. You should consult 40 CFR 372.45 for guidance with respect to products containing toxic chemicals referenced in SARA section 313.

If you have questions regarding CITGO's Hazard Communication Program, please

contact the sender at the above address.

CITGO High Sulfur Kerosene, All Grades
Material Safety Data Sheet

CITGO Petroleum Corporation
P.O. Box 4689
Houston, TX 77210

MSDS No. 08002
Revision Date 1/17/2008

IMPORTANT: This MSDS is prepared in accordance with 29 CFR 1910.1200. Read this MSDS before transporting, handling, storing or disposing of this product and forward this information to employees, customers and users of this product.

Hazard Rankings

	HMIS	NFPA
Health Hazard	* 1	0
Fire Hazard	2	2
Reactivity	0	0

* = Chronic Health Hazard

Protective Equipment

Minimum Recommended
See Section 8 for Details

Emergency Overview

Physical State Liquid.
Color Red or light amber **Odor** Characteristic hydrocarbon odor.

WARNING!
Combustible liquid; vapor may cause flash fire.
Harmful or fatal if swallowed - can enter lungs and cause damage.
Mist or vapor can irritate the respiratory tract.
Liquid contact can cause eye or skin irritation.
May be harmful if inhaled or absorbed through the skin.
Overexposure can cause central nervous system (CNS) depression and/or other target organ effects.
Spills may create a slipping hazard.

SECTION 1. PRODUCT IDENTIFICATION

Trade Name	CITGO High Sulfur Kerosene, All Grades	**Technical Contact**	(832) 486-5940 or (918) 495-5939
Product Number	08002	**Medical Emergency**	(832) 486-4700
CAS Number	Mixture.	**CHEMTREC Emergency (United States Only)**	(800) 424-9300
Product Family	Kerosene		
Synonyms	Kerosene, Kerosine		

SECTION 2. COMPOSITION

Component Name(s)	CAS Registry No.	Concentration (%)
Hydrodesulfurized Kerosine (Petroleum)	64742-81-0	0-100
Hydrodesulfurized Middle Distillate (Petroleum)	64742-80-9	0-100
C10-C20 Petroleum Hydrocarbons	64741-44-2	0-100
Hydrodesulfurized Light Catalytic Cracked Distillate (Petroleum)	68333-25-5	0-100
Kerosene (Petroleum)	8008-20-6	0-100
Naphthalene	91-20-3	0 - 3
Ethylbenzene	100-41-4	0 - 1

SECTION 3. HAZARDS IDENTIFICATION

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

Major Route(s) of Entry Skin contact. Inhalation.

Signs and Symptoms of Acute Exposure

Inhalation

Breathing mist or vapors concentrations well above occupational exposure levels can irritate the mucous membranes of the nose, throat, bronchi, and lungs and can cause transient central nervous system (CNS) depression. Signs and symptoms of CNS depression include headache, dizziness, nausea, blurred vision, slurred speech, flushed face, confusion, weakness, fatigue or loss of consciousness depending upon the concentration and/or duration of exposure. In severe cases, overexposure by inhalation can cause convulsions, coma, or death.

Eye Contact

This product can cause eye irritation with short-term contact with liquid, mists or vapor. Symptoms include stinging, watering, redness, and swelling. In severe cases, permanent eye damage can result.

Skin Contact

Animal test results on similar materials suggest that this product can cause moderate to severe skin irritation. Symptoms include redness, itching, and burning of the skin. Also, certain components of this material may be absorbed through the skin and produce CNS depression effects (see "Inhalation" above). If the skin is damaged, absorption increases. Prolonged and/or repeated contact may cause severe dermatitis and/or more serious skin disorders. Chronic symptoms may include drying, swelling, scaling, blistering, cracking, and/or severe tissue damage.

Ingestion

If swallowed, this material may irritate the mouth, throat, and esophagus. It can be absorbed into the blood stream through the stomach and intestinal tract. Symptoms may include a burning sensation of the mouth and esophagus, nausea and vomiting. In addition, it can cause central nervous system effects characterized by dizziness, staggering, drowsiness, delirium and/or loss of consciousness.

Because of the low viscosity, this material can enter the lungs directly by aspiration during swallowing or subsequent vomiting. Aspiration of a small amount of liquid can cause severe lung damage and/or death.

Chronic Health Effects Summary

Secondary effects of ingestion and subsequent aspiration into the lungs may cause pneumatocele (lung cavity) formation and chronic lung dysfunction.

This product contains petroleum middle distillates similar to those shown to produce skin tumors on laboratory rodents following repeated application. All tumors appeared during the latter portion of the typical 2-year lifespan of the animals. Certain studies have shown that washing the exposed skin of the test animal with soap and water between treatments greatly reduces the potential tumorigenic effects. These data suggest that good personal hygiene is effective in reducing the risk of this potential adverse health effect.

This material and/or its components have been associated with developmental toxicity, reproductive toxicity, genotoxicity, immunotoxicity, and/or carcinogenicity. Refer to Section 11 of this MSDS for additional health-related information.

Conditions Aggravated by Exposure

Medical conditions aggravated by exposure to this material may include skin disorders, chronic respiratory diseases, neurological conditions, liver or kidney dysfunction.

Target Organs

May cause damage to the following organs: kidneys, liver, upper respiratory tract, skin.

Carcinogenic Potential

This material may contain ethylbenzene and naphthalene at concentrations above 0.1%. IARC has identified ethylbenzene and naphthalene as possibly carcinogenic to humans (Group 2B) based on laboratory animal studies. The NTP has determined that naphthalene is *reasonably anticipated to be a human carcinogen* based on sufficient evidence from studies in experimental animals.

OSHA Hazard Classification is indicated by an "X" in the box adjacent to the hazard title. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

OSHA Health Hazard Classification				OSHA Physical Hazard Classification					
Irritant	X	Sensitizer		Combustible	X	Explosive		Pyrophoric	
Toxic		Highly Toxic		Flammable		Oxidizer		Water-reactive	
Corrosive		Carcinogenic		Compressed Gas		Organic Peroxide		Unstable	

SECTION 4. FIRST AID MEASURES

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

Inhalation Move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If breathing is difficult, 100 percent humidified oxygen should be administered by a qualified individual. Seek medical attention immediately. Keep the affected individual warm and at rest.

Eye Contact Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water for at least 15 minutes while occasionally lifting and lowering eyelids. Do not use eye ointment unless directed to by a physician. Seek medical attention if excessive tearing, irritation, or pain persists.

Skin Contact Remove contaminated shoes and clothing. Flush affected area with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. Do not use ointments. If skin surface is not damaged, clean affected area thoroughly with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists.

Ingestion Do not induce vomiting. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Never give anything by mouth to a person who is not fully conscious. Do not leave victim unattended. Seek medical attention immediately.

Notes to Physician Inhalation overexposure can produce toxic effects. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis. Vigorous anti-inflammatory/steroid treatment may be required at first evidence of upper airway or pulmonary edema. Administer 100 percent humidified supplemental oxygen with assisted ventilation, as required.

If ingested, this material presents a significant aspiration/lipoid or chemical pneumonitis hazard. As a result, induction of emesis is not recommended. Consider administration of an aqueous slurry of activated charcoal followed by a cathartic such as magnesium citrate or sorbitol. Also, treatment may involve careful gastric lavage if performed soon after ingestion or in patients who are comatose or at risk of convulsing. Protect the airway by placement in Trendelenburg and left lateral decubitus position or by cuffed endotracheal intubation. If vital signs become abnormal or symptoms develop, obtain a chest x-ray and liver function tests. Antibiotics are indicated if pulmonary bacterial infection occurs. Monitor for cardiac function and arterial blood gases in severe exposure cases.

SECTION 5. FIRE FIGHTING MEASURES

NFPA Flammability Classification NFPA Class-II combustible liquid.

Flash Point Closed cup: 38°C (100°F). (Pensky-Martens. (minimum))

Lower Flammable Limit AP 0.7 % **Upper Flammable Limit** AP 5 %

Autoignition Temperature	Not available.
Hazardous Combustion Products	Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons and trace oxides of sulfur and/or nitrogen.
Special Properties	Combustible Liquid! This material releases vapors when heated above ambient temperatures. Vapors can cause a flash fire. Vapors can travel to a source of ignition and flashback. A vapor and air mixture can create an explosion hazard in confined spaces such as sewers. Use only with adequate ventilation. If container is not properly cooled, it can rupture in the heat of a fire.
Extinguishing Media	SMALL FIRE: Use dry chemicals, carbon dioxide, foam, water fog, or inert gas (nitrogen). LARGE FIRE: Use foam, water fog, or water spray. Water fog and spray are effective in cooling containers and adjacent structures. However, water can cause frothing and/or may not extinguish the fire. Water can be used to cool the external walls of vessels to prevent excessive pressure, autoignition or explosion. DO NOT use a solid stream of water directly on the fire as the water may spread the fire to a larger area.
Protection of Fire Fighters	Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles. Cover pooling liquid with foam. Containers can build pressure if exposed to radiant heat; cool adjacent containers with flooding quantities of water until well after the fire is out. Withdraw immediately from the area if there is a rising sound from a venting safety device or discoloration of vessels, tanks, or pipelines. Be aware that burning liquid will float on water. Notify appropriate authorities of potential fire and explosion hazard if liquid enter sewers or waterways.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

Combustible Liquid! Release can result in a fire hazard. Evacuate all non-essential personnel from release area. Establish a regulated zone with site control and security. Eliminate all ignition sources. Stop the leak if it can done without risk. A vapor-suppressing foam may be used to reduce vapors. Properly bond or ground all equipment used when handling this material. Avoid skin contact. Do not walk through spilled material. Verify that responders are properly trained and wearing appropriate personnel protective equipment. Dike far ahead of a liquid spills. Do not allow released material to entry waterways, sewers, basements, or confined areas. This material will float on water. Absorb or cover with dry earth, sand or other non-combustible material. Use clean, non-sparking tools to collect absorbed material. Place spent sorbent materials, free liquids and other clean-up debris into proper waste containers for appropriate disposal. Certain releases must be reported to the National Response Center (800/424-8802) and state or regulatory authorities. Comply with all laws and regulations.

SECTION 7. HANDLING AND STORAGE

Handling

Combustible Liquid!

A static electrical charge can accumulate when this material is flowing through pipes, nozzles or filters and when it is agitated. A static spark discharge can ignite accumulated vapors particularly during dry weather conditions. Always bond receiving containers to the fill pipe before and during loading. Always keep nozzle in contact with the container throughout the loading process. Do not fill any portable container in or on a vehicle. Special precautions, such as reduced loading rates and increased monitoring, must be observed during "switch loading" operations (i.e., loading this material in tanks or shipping compartments that previously containing gasoline or similar low flash point products).

Fire hazard increases as product temperature approaches its flash point. Keep container closed and drum bungs in place. Remove spillage immediately from walking areas. Do not handle or store near heat, sparks or other potential ignition sources. Do not handle or store

with oxidizing agents. Avoid breathing mist or vapor. Never siphon by mouth. Do not taste or swallow. Avoid contact with eyes, skin and clothing. Use gloves constructed of impervious materials and protective clothing if direct contact is anticipated. Provide ventilation to maintain exposure potential below applicable exposure levels. Avoid water contamination. Wash thoroughly after handling. Prevent contact with food or tobacco products.

When performing repairs and maintenance on contaminated equipment, keep unnecessary persons from hazard area. Eliminate heat, flame and other potential ignition sources. Drain and purge equipment, as necessary, to remove material residues. Remove contaminated clothing. Wash exposed skin thoroughly with soap and water after handling.

Storage

Store in a cool, dry, well-ventilated place. Keep containers tightly closed. Do not store this product near heat, flame or other potential ignition sources. Do not store with oxidizers. Do not store this product in unlabeled containers. Do not puncture or incinerate containers. Ground all equipment containing this material. All electrical equipment in areas where this material is stored or handled must meet all applicable requirements of the NFPA's National Electrical Code (NEC). Store and transport in accordance with all applicable laws.

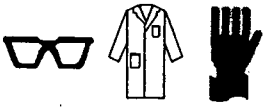
SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls

Provide ventilation or other engineering controls to keep the airborne concentrations of vapor or mists below the applicable workplace exposure limits indicated below. All electrical equipment should comply with the National Electric Code. An emergency eye wash station and safety shower should be located near the work-station.

Personal Protective Equipment

Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.



Eye Protection

Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Chemical goggles should be worn during transfer operations or when there is a likelihood of misting, splashing, or spraying of this material. A suitable emergency eye wash water and safety shower should be located near the work station.

Hand Protection

Avoid skin contact. Use heavy duty gloves constructed of chemical resistant materials such as Viton® or heavy nitrile rubber. Wash hands with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities or leaving work. DO NOT use gasoline, kerosene, solvents or harsh abrasives as skin cleaners.

Body Protection

Avoid skin contact. Wear long-sleeved fire-retardant garments (e.g., Nomex®) while working with flammable and combustible liquids. Additional chemical-resistant protective gear may be required if splashing or spraying conditions exist. This may include an apron, boots and additional facial protection. If product comes in contact with clothing, immediately remove soaked clothing and shower. Promptly remove and discard contaminated leather goods.

Respiratory Protection

Airborne concentration will determine the level of respiratiory protection required. Respiratory protection is normally not required unless the product is heated or misted. For known or anticipated vapor or mist concentrations above the occupational exposure guidelines (see below), use a NIOSH-approved organic vapor respirator equipped with a dust/mist prefilter if adequate protection is provided. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).

General Comments

Warning! Use of this material in spaces without adequate ventilation may result in generation of hazardous levels of combustion products and/or inadequate oxygen levels for breathing. Odor is an inadequate warning for hazardous conditions.

Occupational Exposure Guidelines

Substance	Applicable Workplace Exposure Levels
Kerosene	**NIOSH REL (United States).** TWA: 100 mg/m^3 8 hour(s).
Hydrodesulfurized Kerosine (Petroleum)	Not available.
Hydrodesulfurized middle distillate (petroleum)	Not available.
Straight-run middle distillate (petroleum)	**ACGIH (United States, 1998). Skin** TWA: 100 mg/m^3
Distillates, petroleum, hydrodesulfurized light catalytic cracked	Not available.
Nonane, all isomers	**ACGIH (United States).** TWA: 200 ppm 8 hour(s).
Ethylmethylbenzene, all isomers	Not available.
Naphthalene	**ACGIH (United States). Skin** TWA: 10 ppm 8 hour(s). STEL: 15 ppm 15 minute(s). **OSHA (United States).** TWA: 10 ppm 8 hour(s).
Trimethylbenzenes, all isomers	**ACGIH (United States).** TWA: 25 ppm 8 hour(s).
Xylene, all isomers	**ACGIH (United States).** TWA: 100 ppm 8 hour(s). STEL: 150 ppm 15 minute(s). **OSHA (United States).** TWA: 100 ppm 8 hour(s).
Ethylbenzene	**ACGIH (United States).** TWA: 100 ppm 8 hour(s). STEL: 125 ppm 15 minute(s). **OSHA (United States).** TWA: 100 ppm 8 hour(s).
Middle distillates, petroleum	Not available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (TYPICAL)

Physical State	Liquid.	**Color**	Red or light amber	**Odor**	Characteristic hydrocarbon odor.
Specific Gravity	AP 0.82 (Water = 1)	**pH**	Not Applicable.	**Vapor Density**	AP 4 (Air = 1)
Boiling Range	>150°C (>302°F)			**Melting/Freezing Point**	AP -32°C (-26°F)
Vapor Pressure	<0.3 kPa (<2 mm Hg) (at 20°C)			**Volatility**	AP 825 g/l VOC (W%) (ASTM D2369) =
Solubility in Water	Very slightly soluble in cold water.			**Viscosity (cSt @ 40°C)**	not available
Flash Point	Closed cup: 38°C (100°F). (Pensky-Martens. (minimum))				
Additional Properties	Viscosity (ASTM D2161) = 30 - 40 SUS @ 100° F				

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability Stable. **Hazardous Polymerization** Not expected to occur.

Conditions to Avoid Keep away from heat, flame and other potential ignition sources. Keep away from strong oxidizing conditions and agents.

Materials Incompatibility Strong acids, alkalies, and oxidizers such as liquid chlorine, other halogens, hydrogen peroxide and oxygen.

Hazardous Decomposition Products No additional hazardous decomposition products were identified other than the combustion products identified in Section 5 of this MSDS.

SECTION 11. TOXICOLOGICAL INFORMATION

For other health-related information, refer to the Emergency Overview on Page 1 and the Hazards Identification in Section 3 of this MSDS.

Toxicity Data

Hydrodesulfurized middle distillate (petroleum)
INHALATION LC50, Acute: 4.6 to 7.64 mg/L for four hours [Rat] - Dyspnea, nasal discharge, alopecia and excessive salivation.
ORAL LD50, Acute >500 g/kg [Rat Screening Level] Diarrhea, hyperactivity, ptosis and somnolence.
DERMAL LD50, Acute: >2,000 mg/kg [Rabbit Screening Level]
BUEHLER DERMAL, Acute: Non-sensitizing [Guinea Pig].
14-Day DERMAL, Subchronic: 0.05 ml/kg applied 3 times per week [Mouse, Human skin grafted to Athymic nude Mice] - Irritation and epidermal hyperplasia.
62-Week DERMAL, Chronic: 0.05 ml/kg applied 3 times per week [Mouse] - Extreme skin irritation; moderate increase in contact-point skin tumors.

Straight-run middle distillate (petroleum)
INHALATION, LC50, Acute: 1.72 mg/L for four hours [Male Rat].
INHALATION, LC50, Acute: 1.82 mg/L for 4 hours [Female Rat].
ORAL, LD50, Acute: >5,000 mg/kg [Rat screening level] - Diarrhea, hypoactivity and somnolence.
DERMAL, LD50, Acute: >2,000 mg/kg [Rabbit screen].
BUEHLER DERMAL, Acute: Non-sensitizing [Guinea Pig].
28-Day DERMAL, Subchronic: Moderate irritation at 200 to 2,000 mg/kg with no other treatment-related clinical effects observed.

Naphthalene
Studies in Humans Overexposed to Naphthalene:
Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from over-exposure to naphthalene. Persons with Glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have also been reported from over-exposure to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect.

Studies in Laboratory Animals:
Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) *in vitro*.

Trimethylbenzenes, all isomers
Studies of Workers:
Levels of total hydrocarbon vapors present in the breathing atmosphere of these workers ranged from 10 to 60 ppm. The TCLo for humans is 10 ppm, with somnolence and respiratory tract irritation noted.

Studies in Laboratory Animals:
In inhalation studies with rats, four of ten animals died after exposures of 2400 ppm for 24 hours. An oral dose of 5 mL/kg resulted in death in one of ten rats. Minimum lethal intraperitoneal doses were 1.5 to 2.0 mL/kg in rats and 1.13 to 12 mL/kg in guinea pigs. Mesitylene (1, 3, 5 Trimethylbenzene) inhalation at concentrations of 1.5, 3.0, and 6.0 mg/L for six hours was associated with dose-related changes in white blood cell counts in rats. No significant effects on the complete blood count were noted with six hours per day exposure for five weeks, but elevations of alkaline phosphatase and SGOT were observed. Central nervous system depression and ataxia were noted in rats exposed to 5,100 to 9,180 ppm for two hours.

Ethylbenzene
Effects from Acute Exposure:
ORAL (LD50), Acute: 3,500 mg/kg [Rat].
DERMAL (LD50), Acute: 17,800 uL/kg [Rabbit].
INTRAPERITONEAL (LD50), Acute: 2,624 mg/kg [Rat].

Effects from Prolonged or Repeated Exposure:
Findings from a 2-year inhalation study in rodents conducted by NTP were as follows: Effects were observed only at the highest exposure level (750 ppm). At this level the incidence of renal tumors was elevated in male rats (tubular carcinomas) and female rats (tubular adenomas). Also, the incidence of tumors was elevated in male mice (alveolar and bronchiolar carcinomas) and female mice (hepatocellular carcinomas). IARC has classified ethyl benzene as "possibly carcinogenic to humans" (Group 2B). Studies in laboratory animals indicate some evidence of post-implantation deaths following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate limited evidence of renal malformations, resorptions, and developmental delays following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate some evidence of adverse effects on the liver, kidney, thyroid, and pituitary gland.

Middle distillates, petroleum
Long-term repeated (lifetime) skin exposure to similar materials has been reported to result in an increase in skin tumors in laboratory rodents. The relevance of these findings to humans is not clear at this time.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity data are not available for this product. Based on data from similar products, this material is toxic to aquatic organisms.

Environmental Fate

If spilled, this material will normally evaporate. Hydrocarbon components may contribute to atmospheric smog. If released to the subsoils, petroleum middle distillate fuels will strongly adsorb to soils. Groundwater should be considered as an exposure pathway. Liquid and vapor can migrate through the subsurface and preferential pathways (such as utility line backfill) to downgradient receptors.

Middle distillates are potentially toxic to freshwater and saltwater ecosystems. Distillate fuels will normally float on water. In stagnant or slow-flowing waterways, a hydrocarbon layer can cover a large surface area. As a result, this oil layer can limit or eliminate natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway can cause a fish kill or create an anaerobic environment. Also, this coating action can also kill plankton, algae, and water birds.

SECTION 13. DISPOSAL CONSIDERATIONS

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition.

Conditions of use may cause this material to become a hazardous waste, as defined by Federal or State regulations. It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal. Potential treatment and disposal methods include incineration. Transportation, treatment, storage and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR 260 through 40 CFR 271). Contact your regional US EPA office for guidance concerning case specific disposal issues. State and/or local regulations may be more restrictive.

SECTION 14. TRANSPORT INFORMATION

The shipping description below may not represent requirements for all modes of transportation, shipping methods or locations outside of the United States.

US DOT Status A U.S. Department of Transportation (DOT) regulated material.

Proper Shipping Name Kerosene

Hazard Class 3

Packing Group III

UN/NA Number UN 1223

Reportable Quantity A Reportable Quantity (RQ) has not been established for this material.

Placard(s)

Emergency Response Guide No. 128

MARPOL III Status Not a DOT "Marine Pollutant" per 49 CFR 171.8.

SECTION 15. REGULATORY INFORMATION

TSCA Inventory This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.

SARA 302/304 Emergency Planning and Notification The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.

SARA 311/312 Hazard Identification The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories:

fire, Acute (Immediate) Health Hazard, Chronic (Delayed) Health Hazard

SARA 313 Toxic Chemical Notification and Release Reporting This product contains the following components in concentrations above *de minimis* levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 of SARA:
Naphthalene [CAS No.: 91-20-3] Concentration: 1%

EthylbenzeneCAS No.: 100-41-4] Concentration: 0.5%

CERCLA	The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQ's) listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. Chemical substances present in this product or refinery stream that may be subject to this statute are: Naphthalene [CAS No.: 91-20-3] RQ = 100 lbs. (45.36 kg) Concentration: 1% Xylene, all isomers [CAS No.: 1330-20-7] RQ = 100 lbs. (45.36 kg) Concentration: 0.5% Ethylbenzene [CAS No.: 100-41-4] RQ = 1000 lbs. (453.6 kg) Concentration: 0.5%
Clean Water Act (CWA)	This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.
California Proposition 65	This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5): Naphthalene: 1% Ethylbenzene: 0.5%
New Jersey Right-to-Know Label	Kerosene
Additional Remarks	Federal Hazardous Substances Act, related statutes, and Consumer Product Safety Commission regulations, as defined by 16 CFR 1500.14(b)(3) and 1500.83(a)(13): This product contains "Petroleum Distillates" which may require special labeling if distributed in a manner intended or packaged in a form suitable for use in the household or by children. Precautionary label dialogue should display the following: **DANGER: Contains Petroleum Distillates! Harmful or fatal if swallowed! Call Physician Immediately. KEEP OUT OF REACH OF CHILDREN!**

SECTION 16. OTHER INFORMATION

Refer to the top of Page 1 for the HMIS and NFPA Hazard Ratings for this product.

REVISION INFORMATION

Version Number	2.1
Revision Date	1/17/2008

ABBREVIATIONS

AP: Approximately EQ: Equal >: Greater Than <: Less Than NA: Not Applicable ND: No Data NE: Not Establishe

ACGIH: American Conference of Governmental Industrial Hygienist: AIHA: American Industrial Hygiene Associatior

IARC: International Agency for Research on Cancer NTP: National Toxicology Program

NIOSH: National Institute of Occupational Safety and Health OSHA: Occupational Safety and Health Administration

NPCA: National Paint and Coating Manufacturers Association HMIS: Hazardous Materials Information System

NFPA: National Fire Protection Association EPA: US Environmental Protection Agency

DISCLAIMER OF LIABILITY

THE INFORMATION IN THIS MSDS WAS OBTAINED FROM SOURCES WHICH WE BELIEVE ARE RELIABLE. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESSED OR IMPLIED REGARDING ITS CORRECTNESS. SOME INFORMATION PRESENTED AND CONCLUSIONS DRAWN HEREIN ARE FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE SUBSTANCE ITSELF. THIS MSDS WAS PREPARED AND IS TO BE USED ONLY FOR THIS PRODUCT. IF THE PRODUCT IS USED AS A COMPONENT IN ANOTHER PRODUCT, THIS MSDS INFORMATION MAY NOT BE APPLICABLE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION OR PRODUCTS FOR THEIR

PARTICULAR PURPOSE.

THE CONDITIONS OR METHODS OF HANDLING, STORAGE, USE, AND DISPOSAL OF THE PRODUCT ARE BEYOND OUR CONTROL AND MAY BE BEYOND OUR KNOWLEDGE. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.

***** END OF MSDS *****

CITGO Gasolines, All Grades Unleaded
Material Safety Data Sheet

CITGO Petroleum Corporation
P.O. Box 4689
Houston, TX 77210

MSDS No. UNLEAD
Revision Date 10/14/2008

IMPORTANT: This MSDS is prepared in accordance with 29 CFR 1910.1200. Read this MSDS before transporting, handling, storing or disposing of this product and forward this information to employees, customers and users of this product.

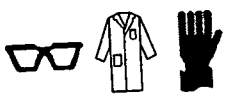
Hazard Rankings

	HMIS	NFPA
Health Hazard	* 2	1
Fire Hazard	3	3
Reactivity	0	0

* = Chronic Health Hazard

Protective Equipment

Minimum Recommended
See Section 8 for Details



Emergency Overview

Physical State Liquid.
Color Transparent, clear to amber or red. **Odor** Pungent, characteristic gasoline.

DANGER:
Extremely flammable liquid; vapor may cause flash fire or explosion.
Vapor may travel considerable distance to source of ignition and flash back.
Use Only as a Motor Fuel. Do Not Siphon by Mouth.
Harmful or fatal if swallowed - Can enter lungs and cause damage.
High concentrations of vapor reduce oxygen available for breathing and may cause suffocation.
May be harmful if inhaled or absorbed through the skin.
Mist or vapor may irritate the eyes, mucous membranes, and respiratory tract.
Liquid contact may cause eye and skin irritation.
Overexposures may cause central nervous system (CNS) depression and target organ effects (See Section 3).
Harmful or fatal if swallowed - Can enter lung and cause damage.
Inhalation overexposure can increase the heart's susceptibility to arrhythmias (irregular beats).
Contains Benzene - Cancer Hazard.
Long term exposure to gasoline vapor has caused cancer in laboratory animals.
Avoid Spills. Spills may present both a physical and an environmental hazard.

SECTION 1. PRODUCT IDENTIFICATION

Trade Name	CITGO Gasolines, All Grades Unleaded	**Technical Contact**	(832) 486-5940
Product Number	Various	**Medical Emergency**	(832) 486-4700
CAS Number	Mixture.	**CHEMTREC Emergency (United States Only)**	(800) 424-9300
Product Family	Motor fuels.		

CITGO Gasolines, All Grades Unleaded

Synonyms Unleaded Gasolines; Conventional Unleaded Gasoline with Ethanol; Unleaded Gasoline with Ethanol; Reformulated Unleaded Gasoline with Ethanol; Motor Gasolines; Petrol; Automobile Motor Fuels; Finished Gasolines; Gasoline, Regular Unleaded; Gasoline, Mid-grade Unleaded; Gasoline, Premium Unleaded; Reformulated Gasolines (RFG); Reformulated Motor Fuels; Oxygenated Motor Spirits; Gasoline, Regular Reformulated; Gasoline, Mid-grade Reformulated; Gasoline, Premium Reformulated; CBOB; RBOB; GTAB; Clean Burning Gasoline (CBG); CARB Gasoline with Ethanol.

SECTION 2. COMPOSITION

Gasoline is a complex and variable mixture that originates from finished refinery streams. These streams can contain the components listed below that are regulated or are associated with certain potential health effects. The typical concentration of ethanol in gasoline does not exceed 10% (v/v).

Component Name(s)	CAS Registry No.	Concentration (%)
Toluene	108-88-3	<25
Pentanes, all isomers	Mixture	<20
Octanes, all isomers	Mixture	<20
Xylene, all isomers	1330-20-7	<18
Hexane, other isomers	Mixture	<15
Heptane, all isomers	142-82-5	<15
Ethanol	64-17-5	<10
n-Hexane	110-54-3	<8
Benzene	71-43-2	<5
Trimethylbenzenes, all isomers	25551-13-7	<5
2,2,4-Trimethylpentane	540-84-1	<5
Cumene	98-82-8	<4
Ethylbenzene	100-41-4	<4
1, 2, 4 Trimethylbenzene	95-63-6	<3
Cyclohexane	110-82-7	<3
Cyclopentane	287-92-3	<2
Naphthalene	91-20-3	<2
Styrene	100-42-5	<1

SECTION 3. HAZARDS IDENTIFICATION

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

Major Route(s) of Entry Skin contact. Eye contact. Inhalation. Ingestion.

Signs and Symptoms of Acute Exposure

Inhalation Breathing high concentrations may be harmful. Mist or vapor can irritate the throat and lungs. Breathing this material may cause central nervous system depression with symptoms including nausea, headache, dizziness, fatigue, drowsiness, or unconsciousness. Breathing high concentrations of this material, for example, in an enclosed space or by intentional abuse, can cause irregular heartbeats which can cause death.

Eye Contact This product can cause eye irritation with short-term contact with liquid, mists or vapor. Symptoms include stinging, watering, redness, and swelling. In severe cases, permanent eye damage can result.

Skin Contact This material can cause skin irritation. The severity of irritation will depend on the amount of material that is applied to the skin and the speed and thoroughness that it is removed. It is likely that some components of this material are able to pass into the body through the skin and may cause similar effects as from breathing or swallowing it. If the skin is damaged or abraded, absorption increases.

Ingestion

If swallowed, this material may irritate the mucous membranes of the mouth, throat, and esophagus. It can be readily absorbed by the stomach and intestinal tract. Symptoms include a burning sensation of the mouth and esophagus, nausea, vomiting, dizziness, staggered gait, drowsiness, loss of consciousness and delirium, as well as additional central nervous system (CNS) effects.

Due to its light viscosity, there is a danger of aspiration into the lungs during swallowing and subsequent vomiting. Aspiration can result in severe lung damage or death. Cardiovascular effects include shallow rapid pulse with pallor (loss of color in the face) followed by flushing (redness of the face). Also, progressive CNS depression, respiratory insufficiency and ventricular fibrillation leads to death.

Chronic Health Effects Summary

Intentional misuse by deliberately concentrating and inhaling gasoline can be harmful or fatal. Altered mental state, drowsiness, peripheral motor neuropathy, irreversible brain damage ("Petrol Sniffers Encephalopathy"), delirium, seizures and sudden death are associated with repeated abuse of gasoline or naphtha.

Chronic effects of ingestion and subsequent aspiration into the lungs may include pneumatocele (lung cavity) formation and chronic lung dysfunction.

Benzene, a component of this product, is associated with blood disorders and may damage bone marrow, causing certain types of anemia. The International Agency for Research on Cancer (IARC) (1987, 2004, 2007) and the U.S. EPA (IRIS 2007) have determined that benzene is a human carcinogen. It is also capable of causing changes in living cells' genetic material (chromosomes) and is considered to be a mutagen.

Repeated and prolonged overexposure to n-hexane has been associated with peripheral nerve tissue damage. Adverse effects include numbness, tingling, pain, and loss of muscle control in the extremities, disorientation, impaired vision and reflexes, decline in motor function and paralysis.

Prolonged or repeated overexposure to toluene, a component of this product, has been associated with reproductive effects in experimental animals and in long-term chemical abuse situations. Long-term overexposure to toluene has been associated with impaired color vision. Also, long-term overexposure to toluene in occupational environments have been associated with hearing damage.

Prolonged or repeated overexposure to xylene, a component of this product, has been associated with hearing damage in laboratory animals. Repeated overexposure may cause injury to bone marrow, blood cells, kidney, and liver.

Refer to Section 11 of this MSDS for additional health-related information.

Conditions Aggravated by Exposure

Disorders of the following organs or organ systems that may be aggravated by significant exposure to this material or its components include: Skin, Respiratory System, Liver, Kidneys, Central Nervous System (CNS), Cardiovascular System, Blood-forming system.

Target Organs

May cause damage to the following organs: blood, kidneys, lungs, the reproductive system, liver, mucous membranes, heart, peripheral nervous system, cardiovascular system, upper respiratory tract, skin, auditory system, bone marrow, central nervous system (CNS), eye, lens or cornea

Carcinogenic Potential

This material may contain benzene, ethylbenzene, naphthalene or styrene at concentrations above 0.1%. Benzene is considered to be a known human carcinogen by OSHA, IARC and NTP. IARC has identified ethylbenzene, styrene, naphthalene, gasoline and gasoline engine exhaust as possibly carcinogenic to humans (Group 2B) based on laboratory animal studies.

OSHA Hazard Classification is indicated by an "X" in the box adjacent to the hazard title. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

OSHA Health Hazard Classification				OSHA Physical Hazard Classification					
Irritant	X	Sensitizer		Combustible		Explosive		Pyrophoric	
Toxic		Highly Toxic		Flammable	X	Oxidizer		Water-reactive	
Corrosive		Carcinogenic	X	Compressed Gas		Organic Peroxide		Unstable	

SECTION 4. FIRST AID MEASURES

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

Inhalation

Immediately move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). If breathing is difficult, 100 percent humidified oxygen should be administered by a qualified individual. Seek medical attention immediately. If exposed to benzene in an emergency situation, a medical evaluation should be completed at the end of the work-shift in accordance with OSHA requirements.

Eye Contact

Flush eyes with cool, clean, low-pressure water for at least 15 minutes. Hold eyelids apart to ensure complete irrigation of the eye and eyelid tissue. If easily accomplished, check for and remove contact lenses. If contact lenses cannot be removed, seek immediate medical attention. Do not use eye ointment. Seek medical attention.

Skin Contact

Remove contaminated shoes and clothing. Flush affected area with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. Do not use ointments. If skin surface is not damaged, clean affected area thoroughly with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists.

Ingestion

Do not induce vomiting. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Never give anything by mouth to a person who is not fully conscious. Do not leave victim unattended. Seek medical attention immediately.

Notes to Physician

INHALATION: Inhalation overexposure can produce toxic effects. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis. Administer supplemental oxygen with assisted ventilation, as required.

This material (or a component) sensitizes the heart to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material. Administration of sympathomimetic drugs should be avoided.

INGESTION: If ingested, this material presents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended. Consider activated charcoal and/or gastric lavage. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in a Trendelenburg and left lateral decubitus position.

SECTION 5. FIRE FIGHTING MEASURES

NFPA Flammability Classification NFPA Class-IB flammable liquid.

Flash Point Closed cup: -43°C (-45°F). (Tagliabue [ASTM D-56])

Lower Flammable Limit AP 1.4 %

Upper Flammable Limit AP 7.6 %

Autoignition Temperature	AP 280°C (536°F)
Hazardous Combustion Products	Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons, aldehydes and other products of incomplete combustion.
Special Properties	Flammable Liquid! This material releases vapors at or below ambient temperatures. When mixed with air in certain proportions and exposed to an ignition source, its vapor can cause a flash fire. Use only with adequate ventilation. Vapors are heavier than air and may travel long distances along the ground to an ignition source and flash back. A vapor and air mixture can create an explosion hazard in confined spaces such as sewers. If container is not properly cooled, it can rupture in the heat of a fire.
Extinguishing Media	SMALL FIRE: Use dry chemicals, carbon dioxide, foam, or inert gas (nitrogen). Carbon dioxide and inert gas can displace oxygen. Use caution when applying carbon dioxide or inert gas in confined spaces. LARGE FIRE: Use foam, water fog, or water spray. Water may be ineffective. Water may not extinguish the fire. Water fog and spray are effective in cooling containers and adjacent structures. However, water can be used to cool the external walls of vessels to prevent excessive pressure, autoignition or explosion. DO NOT use a solid stream of water directly on the fire as the water may spread the fire to a larger area.
Protection of Fire Fighters	Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles. Cover pooling liquid with foam. Containers can build pressure if exposed to radiant heat; cool adjacent containers with flooding quantities of water until well after the fire is out. Withdraw immediately from the area if there is a rising sound from a venting safety device or discoloration of vessels, tanks, or pipelines. Be aware that burning liquid will float on water. Notify appropriate authorities of potential fire and explosion hazard if liquid enter sewers or waterways.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

Flammable Liquid! Release causes an immediate fire or explosion hazard. Evacuate all non-essential personnel from immediate area and establish a "regulated zone" with site control and security. A vapor-suppressing foam may be used to reduce vapors. Eliminate all ignition sources. All equipment used when handling this material must be grounded. Stop the leak if it can done without risk. Do not touch or walk through spilled material. Remove spillage immediately from hard, smooth walking areas. Prevent spilled material from entering waterways, sewers, basements, or confined areas. Absorb or cover with dry earth, sand, or other non-combustible material and transfer to appropriate waste containers. Use clean, non-sparking tools to collect absorbed material.

For large spills, secure the area and control access. Prevent spilled material from entering sewers, storm drains, other drainage systems, and natural waterways. Dike far ahead of a liquid spill to ensure complete collection. Water mist or spray may be used to reduce or disperse vapors; but, it may not prevent ignition in closed spaces. This material will float on water and its run-off may create an explosion or fire hazard. Verify that responders are properly HAZWOPER-trained and wearing appropriate respiratory equipment and fire-resistant protective clothing during cleanup operations. In an urban area, cleanup spill as soon as possible; in natural environments, cleanup on advice from specialists. Pick up free liquid for recycle and/or disposal if it can be accomplished safely with explosion-proof equipment. Collect any excess material with absorbant pads, sand, or other inert non-combustible absorbent materials. Place into appropriate waste containers for later disposal. Comply with all applicable local, state and federal laws and regulations.

SECTION 7. HANDLING AND STORAGE

Handling

FLAMMABLE LIQUID AND VAPOR. **USE ONLY as a motor fuel.** DO NOT siphon by mouth. DO NOT use as a lighter fluid, solvent or cleaning fluid. Prior to handling or refueling, stop all engines and auxillary equipment. Turn off all electronic equipment including cellular telephones. DO NOT leave nozzle unattended during filling or refueling a vehicle. DO NOT re-enter vehicle while refueling. Keep nozzle spout in contact with the container during the entire filling operations.

A static electrical charge can accumulate when this material is flowing through pipes, nozzles or filters and when it is agitated. A static spark discharge can ignite accumulated vapors particularly during dry weather conditions. Always bond receiving containers to the fill pipe before and during loading, following NFPA-704 and /or API RP 2003 requirements. Always keep nozzle in contact with the container throughout the loading process. Do not fill any portable container in or on a vehicle. Special precautions, such as reduced loading rates and increased monitoring, must be observed during "switch loading" operations (i.e., loading this material in tanks or shipping compartments that previously contained middle distillates or similar products).

A spill or leak can cause an immediate fire or explosion hazard. Keep containers closed and do not handle or store near heat, sparks, or any other potential ignition sources. Avoid contact with oxidizing agents. Do NOT breathe vapor. Use only with adequate ventilation and personal protection. Never siphon by mouth. Avoid contact with eyes, skin, and clothing. Prevent contact with food and tobacco products. Do NOT take internally.

When performing repairs and maintenance on contaminated equipment, keep unnecessary persons away from the area. Eliminate all potential ignition sources. Drain and purge equipment, as necessary, to remove material residues. Follow proper entry procedures, including compliance with 29 CFR 1910.146 prior to entering confined spaces such as tanks or pits. Use gloves constructed of impervious materials and protective clothing if direct contact is anticipated. Use appropriate respiratory protection when concentrations exceed any established occupational exposure level (See Section 8) Promptly remove contaminated clothing. Wash exposed skin thoroughly with soap and water after handling.

Non-equilibrium conditions may increase the fire hazard associated with this product. A static electrical charge can accumulate when this material is flowing through pipes, nozzles or filters and when it is agitated. A static spark discharge can ignite accumulated vapors particularly during dry weather conditions. Always bond receiving containers to the fill pipe before and during loading. Always confirm that receiving container is properly grounded. Bonding and grounding alone may be inadequate to eliminate fire and explosion hazards associated with electrostatic charges. Carefully review operations that may increase the risks associated with static electricity such as tank and container filling, tank cleaning, sampling, gauging, loading, filtering, mixing, agitation, etc. In addition to bonding and grounding, efforts to mitigate the hazards of an electrostatic discharge may include, but are not limited to, ventilation, inerting and/or reduction of transfer velocities. Dissipation of electrostatic charges may be improved with the use of conductivity additives when used with other mitigation efforts, including bonding and grounding. Always keep nozzle in contact with the container throughout the loading process.

Do NOT fill any portable container in or on a vehicle. Do NOT use compressed air for filling, discharging or other handling operations. Product container is NOT designed for elevated pressure. Do NOT pressurize, cut, weld, braze solder, drill, or grind on containers. Do NOT expose product containers to flames, sparks, heat or other potential ignition sources. Empty containers may contain material residues which can ignite with explosive force. Observe label precautions.

Protect the environment from releases of this material. Prevent discharges to surface waters and groundwater. Maintain handling, transfer and storage equipment in proper working order.

Misuse of empty containers can be dangerous. Empty containers may contain material residues which can ignite with explosive force. **Cutting or welding of empty containers**

can cause fire, explosion, or release of toxic fumes from residues. Do not pressurize or expose empty containers to open flame, sparks, or heat. Keep container closed and drum bungs in place. All label warnings and precautions must be observed. Return empty drums to a qualified reconditioner. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling, or disposing of empty containers and/or waste residues of this material.

Storage

Keep container tightly closed. Store in a cool, dry, well-ventilated area. Store only in approved containers. Do not store with oxidizing agents. Do not store at elevated temperatures or in direct sunlight. Protect containers against physical damage. Head spaces in tanks and other containers may contain a mixture of air and vapor in the flammable range. Vapor may be ignited by static discharge. Storage area must meet OSHA requirements and applicable fire codes. Additional information regarding the design and control of hazards associated with the handling and storage of flammable and combustible liquids may be found in professional and industrial documents including, but not limited to, the National Fire Protection Association (NFPA) publications NFPA 30 ("Flammable and Combustible Liquid Code"), NFPA 77 ("Recommended Practice on Static Electricity") and the American Petroleum Institute (API) Recommended Practice 2003, ("Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents").

Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers or waste residues of this product.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls

Provide ventilation or other engineering controls to keep the airborne concentrations of vapor or mists below the applicable workplace exposure limits indicated below. All electrical equipment should comply with the National Electrical Code. An emergency eye wash station and safety shower should be located near the work-station.

Personal Protective Equipment

Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.

Eye Protection

Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Chemical goggles should be worn during transfer operations or when there is a likelihood of misting, splashing, or spraying of this material. A suitable emergency eye wash water and safety shower should be located near the work station.

Hand Protection

Avoid skin contact. Use gloves (e.g., disposable PVC, neoprene, nitrile, vinyl, or PVC/NBR). Wash hands with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities or leaving work. DO NOT use this material as a skin cleaner.

Body Protection

Avoid skin contact. Wear long-sleeved fire-retardant garments (e.g., Nomex®) while working with flammable and combustible liquids. Additional chemical-resistant protective gear may be required if splashing or spraying conditions exist. This may include an apron, boots and additional facial protection. If product comes in contact with clothing, immediately remove soaked clothing and shower. Promptly remove and discard contaminated leather goods.

Protection For known vapor concentrations above the occupational exposure guidelines (see below), use a NIOSH-approved organic vapor respirator if adequate protection is provided. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134). For airborne vapor concentrations that exceed the recommended protection factors for organic vapor respirators, use a full-face, positive-pressure, supplied air respirator. Due to fire and explosion hazards, do not enter atmospheres containing concentrations greater than 10% of the lower flammable limit of this product.

Comments Warning! Use of this material in spaces without adequate ventilation may result in generation of hazardous levels of combustion products and/or inadequate oxygen levels for breathing. Odor is an inadequate warning for hazardous conditions.

Exposure Guidelines

	Applicable Workplace Exposure Levels
	ACGIH (United States). TWA: 300 ppm 8 hour(s). STEL: 500 ppm 15 minute(s).
isomers	**ACGIH (United States).** TWA: 600 ppm 8 hour(s). **OSHA (United States).** TWA: 1000 ppm 8 hour(s).
isomers	**ACGIH (United States).** TWA: 300 ppm 8 hour(s). **OSHA (United States).** TWA: 500 ppm 8 hour(s).
	ACGIH (United States). Skin TWA: 20 ppm 8 hour(s). **OSHA (United States).** TWA: 200 ppm 8 hour(s). CEIL: 300 ppm PEAK: 500 ppm 1 times per shift, 10 minute(s).
isomers	**ACGIH (United States).** TWA: 500 ppm 8 hour(s). STEL: 1000 ppm 15 minute(s).
isomers	**ACGIH (United States).** TWA: 400 ppm 8 hour(s). STEL: 500 ppm 15 minute(s). **OSHA (United States).** TWA: 500 ppm 8 hour(s).
	ACGIH (United States). TWA: 100 ppm 8 hour(s). STEL: 150 ppm 15 minute(s). **OSHA (United States).** TWA: 100 ppm 8 hour(s).
	ACGIH (United States). TWA: 1000 ppm 8 hour(s). **OSHA (United States).** TWA: 1000 ppm 8 hour(s).
	ACGIH (United States). Skin TWA: 0.5 ppm 8 hour(s). STEL: 2.5 ppm 15 minute(s). **OSHA (United States). Skin Notes: See Table Z-2 for exclusions in 20 CFR 1910.1028 to the PEL.** TWA: 1 ppm 8 hour(s). STEL: 5 ppm 15 minute(s).
	ACGIH (United States). Skin TWA: 50 ppm 8 hour(s). **OSHA (United States).** TWA: 500 ppm 8 hour(s).
	ACGIH (United States). TWA: 50 ppm 8 hour(s). **OSHA (United States). Skin**

	TWA: 50 ppm 8 hour(s).
Trimethylbenzenes, all isomers	**ACGIH (United States).**
	TWA: 25 ppm 8 hour(s).
Ethylbenzene	**ACGIH (United States).**
	TWA: 100 ppm 8 hour(s).
	STEL: 125 ppm 15 minute(s).
	OSHA (United States).
	TWA: 100 ppm 8 hour(s).
Cyclohexane	**ACGIH (United States).**
	TWA: 100 ppm 8 hour(s).
	OSHA (United States).
	TWA: 300 ppm 8 hour(s).
Cyclopentane	**ACGIH (United States).**
	TWA: 600 ppm 8 hour(s).
Naphthalene	**ACGIH (United States). Skin**
	TWA: 10 ppm 8 hour(s).
	STEL: 15 ppm 15 minute(s).
	OSHA (United States).
	TWA: 10 ppm 8 hour(s).
Styrene	**ACGIH (United States).**
	TWA: 20 ppm 8 hour(s).
	STEL: 40 ppm 15 minute(s).
	OSHA (United States).
	TWA: 100 ppm 8 hour(s).
	STEL: 200 ppm 15 minute(s).
	PEAK: 600 ppm

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (TYPICAL)

Physical State	Liquid.	**Color**	Transparent, clear to amber or red.	**Odor**	Pungent, characteristic gasoline.
Specific Gravity	0.72 - 0.77 (Water = 1)	**pH**	Not applicable	**Vapor Density**	3 to 4 (Air = 1)
Boiling Range	38 to 204°C (100 to 400°F)			**Melting/Freezing Point**	Not available.
Vapor Pressure	220 to 450 mm Hg at 20°C (68°F) or 6 to 15 Reid-psia at 37.8°C (100°F).			**Volatility**	720 to 770 g/l VOC (w/v)
Solubility in Water	Very slightly soluble in cold water. (<0.1 % w/w)			**Viscosity (cSt @ 40°C)**	<1
Flash Point	Closed cup: -43°C (-45°F). (Tagliabue [ASTM D-56])				
Additional Properties	Average Density at 60°F = 6.0 to 6.4 lbs./gal. (ASTM D-2161)				

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability	Stable. **Hazardous Polymerization** Not expected to occur.
Conditions to Avoid	Keep away from heat, flame and other potential ignition sources. Keep away from strong oxidizing conditions and agents.
Materials Incompatibility	Strong acids, alkalies and oxidizers such as liquid chlorine, other halogens, hydrogen peroxide and oxygen.
Hazardous Decomposition Products	No additional hazardous decomposition products were identified other than the combustion products identified in Section 5 of this MSDS.

SECTION 11. TOXICOLOGICAL INFORMATION

For other health-related information, refer to the Emergency Overview on Page 1 and the Hazards Identification in Section 3 of this MSDS.

Toxicity Data

Gasoline
VAPOR (TELo) Acute: 140 ppm (Human) (8 hours) - Mild eye irritant.
VAPOR (TELo) Acute: 500 ppm (Human) (1 hour) - Moderate eye irritant.
INHALATION (TCLo) Acute: 900 ppm (Human) (1 hour) - CNS and pulmonary effects.
DERMAL (TDLo) Acute: 53 mg/kg (Human) - Skin allergy effects.
INHALATION (LC50) Acute: 101,200 ppm (Rat, Mouse, & Guinea Pig) (5 minutes).

A major epidemiological study concluded that there was no increased risk of kidney cancer associated with gasoline exposures for petroleum refinery employees or neighboring residents. Another study identified a slight trend in kidney cancers among service station employees following a 30-year latency period. Two-year inhalation toxicity studies with fully vaporized unleaded gasoline (at concentrations of 67, 292 and 2,056 ppm in air) produced kidney damage and kidney tumors in male rats, but not in female rats or mice of either sex. Results from subsequent scientific studies suggest that the kidney damage, and probably the kidney tumor response, is limited to the male rat. The kidney tumors apparently were the result of the formation of alpha-2u-globulin, a protein unique to male rats. This finding is not considered relevant to human exposure. Under conditions of the study, there was no evidence that exposure to unleaded gasoline vapor is associated with developmental toxicity. Experimental studies with laboratory animals did suggest that overexposure to gasoline may adversely effect male reproductive performance. Also, in laboratory studies with rats, the maternal and developmental "no observable adverse effect level" (NOAEL) was determined to be 9,000 ppm (75% of the LEL value). Female mice developed a slightly higher incidence of liver tumors compared to controls at the highest concentration. In a four week inhalation study of Sprague Dawley® rats, gasoline vapor condensate was determined to induce sister chromatid exchanges in peripheral lymphocytes. IARC has listed gasoline as possibly carcinogenic to humans (Group 2B).

Pentanes, all isomers
Studies of pentane isomers in laboratory animals indicate exposure to extremely high levels (roughly 10 vol.%) may induce cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

Toluene
Effects from Acute Exposure:
Deliberate inhalation of toluene at high concentrations (e.g., glue sniffing and solvent abuse) has been associated with adverse effects on the liver, kidney and nervous system and can cause CNS depression, cardiac arrhythmias and death. Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects.

Effects from Repeated or Prolonged Exposure:
Studies of workers indicate long-term exposure may be related to impaired color vision and hearing. Some studies of workers suggest long-term exposure may be related to neurobehavioral and cognitive changes. Some of these effects have been observed in laboratory animals following repeated exposure to high levels of toluene. Several studies of workers suggest long-term exposure may be related to small increases in spontaneous abortions and changes in some gonadotropic hormones. However, the weight of evidence does not indicate toluene is a reproductive hazard to humans. Studies in laboratory animals indicate some changes in reproductive organs following high levels of exposure, but no significant effects on mating performance or reproduction were observed. Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Findings in laboratory animals were largely negative. Positive findings include small increases in minor skeletal and visceral malformations and developmental delays following very high levels of maternal exposure. Studies of workers indicate long-term exposure may be related to effects on the liver, kidney and blood, but these appear to be limited to changes in serum enzymes and decreased leukocyte counts. Studies in laboratory

animals indicate some evidence of adverse effects on the liver, kidney, thyroid, and pituitary gland following very high levels of exposure. The relevance of these findings to humans is not clear at this time.

Heptane, all isomers
n-Heptane was not mutagenic in the Salmonella/microsome (Ames) assay and is not considered to be carcinogenic.

Xylene, all isomers
Effects from Acute Exposure:
ORAL (LD_{50}), Acute: 4,300 mg/kg [Rat].
INHALATION (LC_{50}), Acute: 4,550 ppm for four hours [Rat].
DERMAL (LD_{50}), Acute: 14,100 uL/kg [Rabbit].
Overexposure to xylene may cause upper respiratory tract irritation, headache, cyanosis, blood serum changes, CNS damage and narcosis. Effects may be increased by the use of alcoholic beverages. Evidence of liver and kidney impairment were reported in workers recovering from a gross over-exposure.

Effects from Prolonged or Repeated Exposure:
Impaired neurological function was reported in workers exposed to solvents including xylene. Studies in laboratory animals have shown evidence of impaired hearing following high levels of exposure. Studies in laboratory animals suggest some changes in reproductive organs following high levels of exposure but no significant effects on reproduction were observed. Studies in laboratory animals indicate skeletal and visceral malformations, developmental delays, and increased fetal resorptions following extremely high levels of maternal exposure. Adverse effects on the liver, kidney, bone marrow (changes in blood cell parameters) were observed in laboratory animals following high levels of exposure. The relevance of these observations to humans is not clear at this time.

Ethanol
Inhalation exposure to ethanol vapor at concentrations above applicable workplace exposure levels is expected to produce eye and mucus membrane irritation. Human exposure at concentrations from 1000 to 5000 ppm produced symptoms of narcosis, stupor and unconsciousness. Subjects exposed to ethanol vapor in concentrations between 500 and 10,000 ppm experienced coughing and smarting of the eyes and nose. At 15,000 ppm there was continuous lacrimation and coughing. While extensive acute and chronic effects can be expected with ethanol consumption, ingestion is not expected to be a significant route of exposure to this product.

Benzene

ORAL (LD50):	Acute: 930 mg/kg [Rat]. 4700 mg/kg [Mouse].
INHALATION (LC50): (VAPOR):	Acute: 10000 ppm 7 hour(s) [Rat]. 9980 ppm 8 hour(s) [Mouse].

Studies of Workers Over-Exposed to Benzene:
Studies of workers exposed to benzene show clear evidence that over-exposure can cause cancer of the blood forming organs (acute myelogenous leukemia) and aplastic anemia, an often fatal disease. Studies also suggest over-exposure to benzene may be associated with other types of leukemia and other blood disorders. Some studies of workers exposed to benzene have shown an association with increased rates of chromosome aberrations in circulating lymphocytes. One study of women workers exposed to benzene suggested a weak association with irregular menstruation. However, other studies of workers exposed to benzene have not demonstrated clear evidence of an effect on fertility or reproductive outcome in humans. Benzene can cross the placenta and affect the developing fetus. Cases of aplastic anemia have been reported in the offspring of persons severely over-exposed to benzene.

Studies in Laboratory Animals:
Studies in laboratory animals indicate that prolonged, repeated exposure to high levels of benzene vapor can cause bone marrow suppression and cancer in multiple organ systems. Studies in laboratory animals show evidence of adverse effects on male reproductive organs following high levels of exposure but no significant effects on reproduction have been observed. Embryotoxicity has been reported in studies of laboratory animals but effects were

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MATERIAL SAFETY DATA SHEET

SABIC Americas, Inc.
2500 City West Blvd., Suite 650
Houston, Texas 77042

Telephone: 713-532-4999
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Date of Issue: February 28, 2003
Revised Date: October 12, 2007

Emergency Number (CHEMTREC): 1-800-424-9300

SECTION 1 – CHEMICAL IDENTIFICATION

Chemical Name: Methanol
Synonyms: Methyl Alcohol
Formula: CH_3OH
Chemical Family: Alcohol

SECTION 2 – COMPOSITION

Components	Percentage	PEL/TLV	CAS Number	EINECS Number
Methanol	100	200 ppm	67-56-1	200-659-6

Note: N.E. = Not Established N/A = Not Applicable

SECTION 3 – HAZARDS IDENTIFICATION

Emergency Overview: Danger! Flammable liquid. Poison. Cannot be made nonpoisonous. Harmful or fatal if swallowed. Harmful if inhaled. May cause blindness if swallowed or inhaled in large amounts. May cause central nervous system effects. Causes eye and skin irritation. Causes digestive and respiratory tract irritation. May cause reproductive and fetal effects. May be absorbed through intact skin. Target organs: kidneys, liver, heart, central nervous system, eyes, lungs, brain, pancreas.

NFPA ratings
1 Health
3 Flammability
0 Reactivity
Specific Hazards:
N/A

Inhalation: May cause irritation of mucous membranes and respiratory tract. May cause central nervous system depression with symptoms of dizziness, headache, nausea, drowsiness, lethargy, convulsions, vertigo, disorientation, visual impairment, and permanent blindness. High levels of exposure may result in collapse, unconsciousness, coma, and death due to respiratory failure.

Skin Contact: May cause moderate irritation. Prolonged and repeated contact may result in defatting and drying of the skin which may lead to dermatitis and increased chance of secondary infection.

Skin Absorption: May be absorbed through the skin in harmful amounts with symptoms paralleling those of ingestion or inhalation.

Eye Contact: Causes severe eye irritation characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. May cause painful

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sensitization to light.

Ingestion: May be fatal or cause blindness if swallowed. May cause gastrointestinal irritation with symptoms of nausea, vomiting, and diarrhea. May cause systemic toxicity with acidosis. May cause central nervous system depression with symptoms of dizziness, headache, nausea, and drowsiness. High levels of exposure may result in collapse, unconsciousness, coma, and death due to respiratory failure. May cause cardiopulmonary system effects. Fatal human dose considered to be 100-125 ml. Death from a dose of less than 30 ml has been reported.

Effects of Chronic Exposure: Chronic exposure may cause reproductive disorders, teratogenic effects, and mutagenic effects. Prolonged exposure may damage the liver, kidneys, and heart.

SECTION 4 – FIRST AID MEASURES

Eye Contact: Immediately flush eyes with water for at least 15 minutes. Hold eyes open while flushing out with water. Seek medical attention immediately.

Skin Contact: Immediately remove contaminated clothing and shoes. Flush skin with water for at least 15 minutes. Use soap if available or follow by washing with soap and water. Do not reuse contaminated clothing without laundering. If irritation persists, seek medical attention.

Inhalation: Remove victim to fresh air. If breathing is difficult, give oxygen. If not breathing, administer artificial respiration. Seek medical attention immediately.

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. **Never give anything by mouth to an unconscious person.** Induce vomiting immediately by giving one teaspoon of Syrup of Ipecac or sticking finger down throat. Keep head below hips to prevent aspiration of liquid into lungs. Seek medical attention immediately.

SECTION 5 – FIREFIGHTING MEASURES

Flash Point Temperature:	51.8°F, 11°C
Autoignition Temperature:	867.2°F, 464°C
Flammable Limits:	Lower: 6.0% Upper: 36.0%
Extinguishing Media:	Water, Dry Chemical, "Alcohol" Foam, Carbon Dioxide
Firefighting Procedures:	Firefighters should wear NIOSH approved self-contained breathing apparatus and appropriate protective clothing to prevent contact. Cool exposed containers with water.
Unusual Fire and Explosion Information:	Do not use direct stream of water to fight fire. Methanol will float and can be re-ignited on the surface. Containers can build up pressure if subjected to heat of the fire and may explode. Flashback hazard – vapors are heavier than air and can collect in low areas forming an explosive methanol and air mixture.
Environmental Note:	Prevent product from getting into sewers or surface waters.

Initials & Date

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Isolate the hazard area and deny entry to nonessential personnel. Emergency responders and/or clean-up personnel should wear appropriate protective clothing and equipment when responding. Stop flow if safe to do so. Remove all ignition sources. A vapor suppressing foam may be used to reduce vapors. Prevent from entering sewers or surface waters. Collect liquid in containers and seal shut. Absorb remaining material with a noncombustible absorbent such as earth, sand, or vermiculite and collect for disposal.

SECTION 7 – HANDLING AND STORAGE

DANGER! Flammable:

Keep away from heat, sparks, and open flames. Keep containers tightly closed. Store away from strong oxidizing agents in a cool dry place. Use adequate explosion-proof ventilation to prevent accumulation of static charge. When pouring or transferring materials, containers must be bonded and grounded. Do not store in aluminum or lead containers.

DO NOT weld, heat, or drill on or near full or empty containers. Empty containers can contain explosive vapors.

Do not breath vapors or mist. Minimize skin contact. Wash with soap and water before eating, drinking, smoking, or using toilet facilities. Launder contaminated clothing before reuse. Properly dispose of contaminated leather articles, including shoes that cannot be decontaminated.

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

Respiratory Protection:	Utilize NIOSH approved half face or full face supplied air respirator, or self-contained breathing apparatus. Cartridge respirators have a very short service life when used for methanol. Consult with an Industrial Hygienist before determining which respirators to use. Respirators must be utilized in compliance with OSHA regulations 29CFR1910.134.
Ventilation:	Use explosion-proof ventilation equipment. Utilize local exhaust to control vapors. Do not rely on general exhaust.
Protective Gloves:	Neoprene, butyl, PVC, or viton gloves are recommended.
Eye Protection:	Chemical goggles and face shield.
Other Protective Equipment:	Wear additional protective clothing as required to prevent skin contact. This may include chemical aprons, chemical resistant boots, and chemical resistant suits. Safety shower and eyewash are necessary in work area.
Work Practices:	Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove contaminated clothing and launder before reuse. Shower after work using plenty of soap and water.
Electrical Equipment:	Class I Division 2 or higher.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance: clear, colorless liquid **Threshold Odor Conc:** 141 ppm

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Odor:	alcohol	**Boiling Point:**	148.5 °F, 64.7°C
Specific Gravity (H2O = 1):	0.7910	**Freezing Point:**	-144.4°F, -98°C
Evaporation Rate (ether = 1):	5.2	**Vapor Density (Air=1):**	1.11
Soluble in:	most organic solvents	**Vapor Pressure:**	128 mm Hg @ 20°C
Solubility in Water:	Miscible	**% Volatiles by Volume:**	100
Viscosity:	0.55 cP @ 20°C	**Molecular Weight:**	32.04

SECTION 10 – STABILITY AND REACTIVITY

Chemical Stability: Stable under normal temperatures and pressures.

Hazardous Polymerization: Will not occur.

Conditions to Avoid: Incompatible materials, ignition sources, excess heat.

Incompatible Materials: **Explodes on contact with:** chloroform + sodium methoxide, diethyl zinc.

Violent reaction with: alkyl aluminum salts, acetyl bromide, chloroform + sodium hydroxide, chromium oxide, cyanuric chloride, iodine + ethanol + mercuric oxide, lead perchlorate, perchloric acid, phosphorus trioxide, potassium hydroxide + chloroform, nitric acid.

Strong oxidizing agents, strong acids, isocyanates, aliphatic amines, caustics (e.g. ammonia, ammonium hydroxide, calcium hydroxide, potassium hydroxide, sodium hydroxide), beryllium dihydride, metals (e.g., potassium, magnesium), oxidants (e.g., barium perchlorate, bromine, sodium hypochlorite, chlorine, hydrogen peroxide), potassium tert-butoxide, carbon tetrachloride + metals (e.g., aluminum, magnesium, zinc), dichloromethane.

Will attack some forms of plastics, rubber, and coatings.

Decomposition Products: Carbon monoxide, carbon dioxide, formaldehyde, irritating and toxic fumes and gases.

SECTION 11 – TOXICOLOGICAL INFORMATION

Occupational Exposure Limits

OSHA	PEL:	200 ppm	STEL:	250 ppm
ACGIH	TLV:	200 ppm	STEL:	250 ppm
NIOSH	IDLH:	6000 ppm		

Eye:	100 mg/24H MODERATE (rabbit)		85JCAE -, 187, 86
Skin:	20 mg/24 H MODERATE (rabbit)		85JCAE -, 187, 86
Inhalation:	LCLo:	1,000 ppm (monkey)	IECHAD 23, 931, 31
	TCLo:	300 ppm (human) eye, pulmonary, CNS effects	NPIRI* 1, 74, 74
	LC50:	64,000 ppm/4 H (rat)	NPIRI* 1, 74, 74
Oral:	LDLo:	143 mg/kg (human)	34ZIAG -, 382, 69
	LDLo:	428 mg/kg (human)	NPIRI* 1, 74, 74
Skin:	LDLo:	393 mg/kg (monkey)	IECHAD 23, 931, 31

Initials & Date AL 11/9/07

Methanol is a suspected mutagen, reproductive hazard and teratogen. Methanol is eliminated from the body very slowly and should be considered a cumulative poison.

Carcinogenicity listed by: NTP: No IARC: No OSHA: No

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity

Fish: LC50: 13 mg/l (rainbow trout fingerling)
LC50: 29,400 mg/l/96 H (fathead minnow, 28 days old)
LC50: 8000 mg/l (trout)

Mobility: Expected to be highly mobile in soil and may leach into groundwater.

Degradation: Expected to biodegrade in soil or water very rapidly. Estimated half life of 17.8 days.

Bioaccumulative Potential: Not expected to bioaccumulate.

SECTION 13 – DISPOSAL INFORMATION

Place in a city, state, or federally permitted disposal facility. Handle in accordance with all applicable regulations.

SECTION 14 – TRANSPORTATION INFORMATION

DOT Shipping Description: UN1230, Methanol, 3 (6.1), II

Note: the new DOT shipping description given above is being phased in. Use was authorized beginning on January 1, 2007. The old DOT shipping description (Methanol, 3, UN1230, II) may continue to be used until January 1, 2013 when the new DOT shipping description (UN1230, Methanol, 3, II) becomes mandatory.

RQ: 5000 pounds (2270 kilograms)

SECTION 15 – REGULATORY INFORMATION

TSCA: All components are listed on the TSCA Inventory.
SARA Title III
Acute: Yes
Chronic: Yes
Fire: Yes
Reactivity: No
Pressure: No
Methanol is on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, and Massachusetts.

SECTION 16 – OTHER INFORMATION

First revision: January 18, 2006.

Initials & Date MC 11/8/07

Second revision: October 12, 2007.

DISCLAIMER

The information contained in this Material Safety Data Sheet is offered in good faith as accurate but does not purport to be all-inclusive. Health and safety precautions in this Material Safety Data Sheet may not be adequate for all individuals and/or situations. It is the user's responsibility to determine the suitability of any material for a specific purpose, adopt such safety precautions as may be necessary and comply with all applicable laws and regulations. Nothing herein is to be construed as recommending any practice or the use of any product in violation of any patent or of any law or regulation. SABIC makes no representations or warranties, either express or implied, including without limitation any warranties of merchantability or of fitness for a particular purpose with respect to the information set forth in this Material Safety Data Sheet or to the product to which the information refers. Accordingly, SABIC will assume no liabilities in connection with any use of or reliance on this information.

Initials & Date

CITGO SUPERGARD® Motor Oil, SAE 10W-30

Material Safety Data Sheet

CITGO Petroleum Corporation
P.O. Box 4689
Houston, TX 77210

MSDS No. 620813001
Revision Date 12/17/2009

IMPORTANT: This MSDS is prepared in accordance with 29 CFR 1910.1200. Read this MSDS before transporting, handling, storing or disposing of this product and forward this information to employees, customers and users of this product.

Hazard Rankings

	HMIS	NFPA
Health Hazard	0	0
Fire Hazard	1	1
Reactivity	0	0

* = Chronic Health Hazard

Protective Equipment

Minimum Recommended
See Section 8 for Details

Emergency Overview

Physical State Liquid.
Color Amber to dark amber **Odor** Mild petroleum odor

CAUTION:
Hot oil can cause thermal burns on contact.
"Used" motor oil has been associated with skin cancer in laboratory animals following extended contact.
Spills may create a slipping hazard.

SECTION 1. PRODUCT IDENTIFICATION

Trade Name	CITGO SUPERGARD® Motor Oil, SAE 10W-30	**Technical Contact**	(800) 248-4684
Product Number	620813001	**Medical Emergency**	(832) 486-4700
CAS Number	Mixture.	**CHEMTREC Emergency (United States Only)**	(800) 424-9300
Product Family	Motor oil		
Synonyms	Motor oil; CITGO® Material Code: 6200813001		

SECTION 2. COMPOSITION

Component Name(s)	CAS Registry No.	Concentration (%)
Highly-refined petroleum lubricant oils	Various	60 - 100
Proprietary Ingredients	Proprietary Mixture	<10
Zinc and zinc compounds	Proprietary	<1

SECTION 3. HAZARDS IDENTIFICATION

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

Major Route(s) of Entry Skin contact.

Signs and Symptoms of Acute Exposure

Inhalation At elevated temperatures or in enclosed spaces, product mist or vapors may irritate the mucous membranes of the nose, the throat, bronchi, and lungs.

Eye Contact This product can cause transient mild eye irritation with short-term contact with liquid sprays or mists. Symptoms include stinging, watering, redness, and swelling.

Skin Contact	This product can cause mild, transient skin irritation. Skin contact with hot material may result in severe burns.
Ingestion	If swallowed, this material can cause a laxative effect.
Chronic Health Effects Summary	This product contains a petroleum-based mineral oil. Prolonged or repeated skin contact can cause mild irritation and inflammation characterized by drying, cracking, (dermatitis) or oil acne. Repeated or prolonged inhalation of petroleum-based mineral oil mists at concentrations above applicable workplace exposure levels can cause respiratory irritation or other pulmonary effects.
Conditions Aggravated by Exposure	Disorders of the following organs or organ systems that may be aggravated by significant exposure to this material or its components include: Skin
Target Organs	May cause damage to the following organs: skin.
Carcinogenic Potential	This product is not known to contain any components at concentrations above 0.1% which are considered carcinogenic by OSHA, IARC or NTP.

OSHA Hazard Classification is indicated by an "X" in the box adjacent to the hazard title. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

OSHA Health Hazard Classification				OSHA Physical Hazard Classification					
Irritant		Sensitizer		Combustible		Explosive		Pyrophoric	
Toxic		Highly Toxic		Flammable		Oxidizer		Water-reactive	
Corrosive		Carcinogenic		Compressed Gas		Organic Peroxide		Unstable	

SECTION 4. FIRST AID MEASURES

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

Inhalation	Vaporization is not expected at ambient temperatures. This material is not expected to cause inhalation-related disorders under anticipated conditions of use. In case of overexposure, move the person to fresh air.
Eye Contact	Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water while occasionally lifting and lowering eyelids. Seek medical attention if excessive tearing, redness, or pain persists.
Skin Contact	If burned by hot material, cool skin by quenching with large amounts of cool water. For contact with product at ambient temperatures, remove contaminated shoes and clothing. Wipe off excess material. Wash exposed skin with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists. Thoroughly clean contaminated clothing before reuse. Clean or discard contaminated leather goods. If material is injected under the skin, seek medical attention immediately.
Ingestion	Do not induce vomiting unless directed to by a physician. Do not give anything to drink unless directed to by a physician. Never give anything by mouth to a person who is not fully conscious. Seek medical attention immediately.
Notes to Physician	INGESTION: The viscosity range of the product(s) represented by this MSDS is greater than 100 SUS at 100°F. Careful gastric lavage may be considered to evacuate large quantities of material.

SECTION 5. FIRE FIGHTING MEASURES

NFPA Flammability Classification	NFPA Class-IIIB combustible material.
Flash Point	Open cup: 231°C (448°F) (Cleveland.).
Lower Flammable Limit	No data. **Upper Flammable Limit** No data.
Autoignition Temperature	Not available.
Hazardous Combustion Products	Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons and oxides of sulfur, phosphorus, zinc and/or nitrogen.
Special Properties	This material can burn but will not readily ignite. This material will release vapors when heated above the flash point temperature that can ignite when exposed to a source of ignition. In enclosed spaces, heated vapor can ignite with explosive force. Mists or sprays may burn at temperatures below the flash point.
Extinguishing Media	Use dry chemical, foam, carbon dioxide or water fog. Water or foam may cause frothing. Carbon dioxide and inert gas can displace oxygen. Use caution when applying carbon dioxide or inert gas in confined spaces.
Protection of Fire Fighters	Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

Do not touch damaged containers or spilled material unless wearing appropriate protective equipment. Slipping hazard; do not walk through spilled material. Stop leak if you can do so without risk. For small spills, absorb or cover with dry earth, sand, or other inert non-combustible absorbent material and place into waste containers for later disposal. Contain large spills to maximize product recovery or disposal. Prevent entry into waterways or sewers. In urban area, cleanup spill as soon as possible. In natural environments, seek cleanup advice from specialists to minimize physical habitat damage. This material will float on water. Absorbent pads and similar materials can be used. Comply with all laws and regulations.

SECTION 7. HANDLING AND STORAGE

Handling

Keep containers closed and do not handle or store near heat, sparks, or any other potential ignition sources. Avoid contact with oxidizing agents. Never siphon by mouth. Avoid contact with eyes, skin, and clothing. Avoid contamination and extreme temperatures.

Empty containers may contain product residues that can ignite with explosive force. Drain and purge equipment, as necessary, to remove material residues. Follow proper entry procedures, including compliance with 29 CFR 1910.146 prior to entering confined spaces such as tanks or pits. Use appropriate respiratory protection when concentrations exceed any established occupational exposure level (See Section 8). Promptly remove contaminated clothing. Wash exposed skin thoroughly with soap and water after handling.

Do not pressurize, cut, weld, braze solder, drill, grind or expose containers to flames, sparks, heat or other potential ignition sources. Protect containers against physical damage. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.

Storage

Keep container tightly closed. Store in a cool, dry, well-ventilated area. Store only in approved containers. Do not store with strong oxidizing agents. Do not store at elevated temperatures. Avoid storing product in direct sunlight for extended periods of time. Storage area must meet OSHA requirements and applicable fire codes. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers or waste residues of this product.

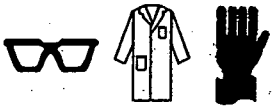
SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of mists and/or vapors below the recommended exposure limits (see below). An eye wash station and safety shower should be located near the work-station.

Personal Protective Equipment

Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.



Eye Protection

Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Wear goggles if splashing or spraying is anticipated. Wear goggles and face shield if material is heated above 125°F (51°C). Have suitable eye wash water available.

Hand Protection

None required for incidental contact. Use gloves constructed of chemical resistant materials such as heavy nitrile rubber if frequent or prolonged contact is expected. Use heat-protective gloves when handling product at elevated temperatures.

Body Protection

Avoid prolonged or repeated skin contact. Use clean protective clothing if splashing or spraying conditions are present such as long-sleeved garment. Remove oil contaminated clothing and launder before reuse. Heavily contaminated clothing and leather goods should be removed promptly and cleaned or discarded.

Respiratory Protection

The need for respiratory protection is not anticipated under normal use conditions and with adequate ventilation. If elevated airborne concentrations above applicable workplace exposure levels are anticipated, a NIOSH-approved organic vapor respirator equipped with a dust/mist prefilter should be used. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).

General Comments

Use good personal hygiene practices. Wash hands and other exposed skin areas with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities, or leaving work. DO NOT use gasoline, kerosene, solvents or harsh abrasives as skin cleaners. Since specific exposure standards/control limits have not been established for this product, the "Oil Mist, Mineral" exposure limits shown below are suggested as minimum control guidelines.

Occupational Exposure Guidelines

Substance	Applicable Workplace Exposure Levels
Oil Mist, Mineral	**ACGIH (United States).** TWA: 5 mg/m^3 STEL: 10 mg/m^3 **OSHA (United States).** TWA: 5 mg/m^3

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (TYPICAL)

Physical State	Liquid.	**Color**	Amber to dark amber	**Odor**	Mild petroleum odor
Specific Gravity	0.88 (Water = 1)	**pH**	Not applicable	**Vapor Density**	>1 (Air = 1)
Boiling Range	Not available.			**Melting/Freezing Point**	Not available.
Vapor Pressure	<0.001 kPa (<0.01 mm Hg) (at 20°C)			**Volatility**	Negligible volatility.
Solubility in Water	Negligible solubility in cold water.			**Viscosity (cSt @ 40°C)**	68

Flash Point Open cup: 231°C (448°F) (Cleveland.).

Additional Properties Gravity, °API (ASTM D287) = 29.5 @ 60° F
Density = 7.32 Lbs/gal.
Viscosity (ASTM D2161) = 347 SUS @ 100° F

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability Stable. **Hazardous Polymerization** Not expected to occur.

Conditions to Avoid Keep away from extreme heat, sparks, open flame, and strongly oxidizing conditions.

Materials Incompatibility Strong oxidizers.

Hazardous Decomposition Products No additional hazardous decomposition products were identified other than the combustion products identified in Section 5 of this MSDS.

SECTION 11. TOXICOLOGICAL INFORMATION

For other health-related information, refer to the Emergency Overview on Page 1 and the Hazards Identification in Section 3 of this MSDS.

Toxicity Data

Highly-refined petroleum lubricant oils
ORAL (LD50): Acute: >5000 mg/kg [Rat].
DERMAL (LD50): Acute: >2000 mg/kg [Rabbit].

Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects. In long term studies (up to two years) no carcinogenic effects have been reported in any animal species tested.

Engine oil
Used motor oil was associated with cancer in lifetime skin painting studies with laboratory animals. Avoid prolonged or repeated contact with used motor oil. Use of good hygiene practices will reduce the liklihood of potential health effects.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Analysis for ecological effects has not been conducted on this product. However, if spilled, this product and any contaminated soil or water may be harmful to human, animal, and aquatic life. Also, the coating action associated with petroleum and petroleum products can be harmful or fatal to aquatic life and waterfowl.

Environmental Fate

An environmental fate analysis is not available for this specific product. Plants and animals may experience harmful or fatal effects when coated with petroleum products. Petroleum-based (mineral) lubricating oils normally will float on water. In stagnant or slow-flowing waterways, an oil layer can cover a large surface area. As a result, this oil layer might limit or eliminate natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway may be sufficient to cause a fish kill or create an anaerobic environment. This material contains phosphorus which is a controlled element for disposal in effluent waters in most sections of North America. Phosphorus is known to enhance the formation of algae. Severe algae growth can reduce oxygen content in the water possibly below levels necessary to support marine life.

SECTION 13. DISPOSAL CONSIDERATIONS

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition.

Conditions of use may cause this material to become a "hazardous waste", as defined by federal or state regulations. It is the responsibility of the user to determine if the material is a "hazardous waste" at the time of disposal. Transportation, treatment, storage, and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR 260 through 40 CFR 271). State and/or local regulations may be more restrictive. Contact your regional US EPA office for guidance concerning case specific disposal issues. Empty drums and pails retain residue. DO NOT pressurize, cut, weld, braze, solder, drill, grind, or expose this product's empty container to heat, flame, or other ignition sources. DO NOT attempt to clean it. Empty drums and pails should be drained completely, properly bunged or sealed, and promptly sent to a reconditioner.

SECTION 14. TRANSPORT INFORMATION

The shipping description below may not represent requirements for all modes of transportation, shipping methods or locations outside of the United States.

US DOT Status Not regulated by the U.S. Department of Transportation as a hazardous material.

Proper Shipping Name Not regulated.

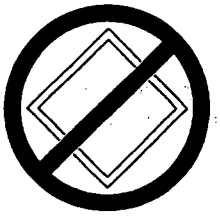
Hazard Class Not regulated.

Packing Group Not applicable.

UN/NA Number Not regulated.

Reportable Quantity A Reportable Quantity (RQ) has not been established for this material.

Placard(s)



Emergency Response Guide No. Not applicable.

MARPOL III Status Not a DOT "Marine Pollutant" per 49 CFR 171.8.

Oil: The product(s) represented by this MSDS is (are) regulated as "oil" under 49 CFR Part 130. Shipments by rail or highway in packaging having a capacity of 3500 gallons or more or in a quantity greater 42,000 gallons are subject to these requirements. In addition, mixtures containing 10% or more of this product may be subject to these requirements.

SECTION 15. REGULATORY INFORMATION

TSCA Inventory	This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.
SARA 302/304 Emergency Planning and Notification	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.
SARA 311/312 Hazard Identification	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories: No SARA 311/312 hazard categories identified.
SARA 313 Toxic Chemical Notification and Release Reporting	This product contains the following components in concentrations above *de minimis* levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 of SARA: No components were identified.
CERCLA	The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQ's) listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. Chemical substances present in this product or refinery stream that may be subject to this statute are: Zinc and Zinc Compounds, Concentration: <1%
Clean Water Act (CWA)	This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.
California Proposition 65	This product is not known to contain any components for which the State of California has found to cause cancer, birth defects or other reproductive harm.
New Jersey Right-to-Know Label	Motor oil
Additional Remarks	No additional regulatory remarks.

SECTION 16. OTHER INFORMATION

Refer to the top of Page 1 for the HMIS and NFPA Hazard Ratings for this product.

REVISION INFORMATION

Version Number	6.0
Revision Date	12/17/2009

ABBREVIATIONS

AP: Approximately EQ: Equal >: Greater Than <: Less Than

NA: Not Applicable ND: No Data NE: Not Established

ACGIH: American Conference of Governmental Industrial Hygienists

AIHA: American Industrial Hygiene Association

IARC: International Agency for Research on Cancer

NIOSH: National Institute of Occupational Safety and Health

NPCA: National Paint and Coating Manufacturers Association

EPA: US Environmental Protection Agency

HMIS: Hazardous Materials Information System

OSHA: Occupational Safety and Health Administration

NTP: National Toxicology Program

NFPA: National Fire Protection Association

DISCLAIMER OF LIABILITY

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THE CONDITIONS OR METHODS OF HANDLING, STORAGE, USE, AND DISPOSAL OF THE PRODUCT ARE BEYOND OUR CONTROL AND MAY BE BEYOND OUR KNOWLEDGE. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.

***** END OF MSDS *****

Account Number: 0000204602 620813001

STEM BROTHERS INC
PO Box T

MILFORD, NJ 08848

Attention: Material Safety Data Sheet Coordinator

Re: Material Safety Data Sheet

Dear Customer:

Enclosed is a Material Safety Data Sheet (MSDS) for the products that your company purchased from CITGO Petroleum Corporation. This information is provided in accordance with the requirements of the Occupational Safety and Health Administration's Hazard Communication Standard (29 CFR 1910.1200).

In addition, the enclosed MSDS provides a list of the specific chemical components, if any, which are subject to the chemical reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986.

Material Safety Data Sheets are provided to current customers with the initial purchase of a product. Also, revised MSDSs are provided upon the first purchase of a product immediately after revision or update of that document. In addition, for products containing components that are subject to Section 313 reporting requirements, an MSDS is provided to all current customers on an annual basis. Please refer to the revision date in this MSDS and substitute it for any previous versions that you may have on file. Please note that multiple products may be represented by this MSDS. Duplicate copies of this MSDS will not be sent automatically for future orders of product(s) represented by this MSDS. MSDSs for CITGO lubricant products are available on the CITGO website at http://www.citgo.com.

Please forward this MSDS to the person(s) within your organization responsible for maintaining safety and environmental information. If you are a marketer, federal regulations require that you provide a copy of this MSDS to your customers.

Thank you for your interest in the safe and proper management of our products.

Enclosure

CITGO CITGARD® 600 Engine Oil, SAE 15W-40

Material Safety Data Sheet

CITGO Petroleum Corporation
P.O. Box 4689
Houston, TX 77210

MSDS No. 622615001
Revision Date 10/9/2009

IMPORTANT: This MSDS is prepared in accordance with 29 CFR 1910.1200. Read this MSDS before transporting, handling, storing or disposing of this product and forward this information to employees, customers and users of this product.

Hazard Rankings

	HMIS	NFPA
Health Hazard	1	1
Fire Hazard	1	1
Reactivity	0	0

* = Chronic Health Hazard

Protective Equipment

Minimum Recommended
See Section 8 for Details

Emergency Overview

Physical State Liquid.
Color Amber to dark amber **Odor** Mild petroleum odor

CAUTION:
Hot oil can cause thermal burns on contact.
"Used" motor oil has been associated with skin cancer in laboratory animals following extended contact.
Spills may create a slipping hazard.

SECTION 1. PRODUCT IDENTIFICATION

Trade Name	CITGO CITGARD® 600 Engine Oil, SAE 15W-40	**Technical Contact**	(800) 248-4684
Product Number	622615001	**Medical Emergency**	(832) 486-4700
CAS Number	Mixture.	**CHEMTREC Emergency (United States Only)**	(800) 424-9300
Product Family	Motor oil		
Synonyms	Heavy duty motor oil; CITGO® Material Code: 622615001		

SECTION 2. COMPOSITION

Component Name(s)	CAS Registry No.	Concentration (%)
Highly-refined petroleum lubricant oils	Various	60 - 100
Proprietary Ingredients	Proprietary Mixture	<10
Zinc and zinc compounds	Proprietary	<2

SECTION 3. HAZARDS IDENTIFICATION

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

Major Route(s) of Entry Skin contact.

Signs and Symptoms of Acute Exposure

Inhalation At elevated temperatures or in enclosed spaces, product mist or vapors may irritate the mucous membranes of the nose, the throat, bronchi, and lungs.

Eye Contact This product can cause transient mild eye irritation with short-term contact with liquid sprays or mists. Symptoms include stinging, watering, redness, and swelling.

Skin Contact	This product can cause mild, transient skin irritation. Skin contact with hot material may result in severe burns.
Ingestion	If swallowed, this material can cause a laxative effect.
Chronic Health Effects Summary	This product contains a petroleum-based mineral oil. Prolonged or repeated skin contact can cause mild irritation and inflammation characterized by drying, cracking, (dermatitis) or oil acne. Repeated or prolonged inhalation of petroleum-based mineral oil mists at concentrations above applicable workplace exposure levels can cause respiratory irritation or other pulmonary effects.
Conditions Aggravated by Exposure	Disorders of the following organs or organ systems that may be aggravated by significant exposure to this material or its components include: Skin
Target Organs	May cause damage to the following organs: skin.
Carcinogenic Potential	This product is not known to contain any components at concentrations above 0.1% which are considered carcinogenic by OSHA, IARC or NTP.

OSHA Hazard Classification is indicated by an "X" in the box adjacent to the hazard title. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

OSHA Health Hazard Classification				OSHA Physical Hazard Classification					
Irritant		Sensitizer		Combustible		Explosive		Pyrophoric	
Toxic		Highly Toxic		Flammable		Oxidizer		Water-reactive	
Corrosive		Carcinogenic		Compressed Gas		Organic Peroxide		Unstable	

SECTION 4. FIRST AID MEASURES

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

Inhalation	Vaporization is not expected at ambient temperatures. This material is not expected to cause inhalation-related disorders under anticipated conditions of use. In case of overexposure, move the person to fresh air.
Eye Contact	Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water while occasionally lifting and lowering eyelids. Seek medical attention if excessive tearing, redness, or pain persists.
Skin Contact	If burned by hot material, cool skin by quenching with large amounts of cool water. For contact with product at ambient temperatures, remove contaminated shoes and clothing. Wipe off excess material. Wash exposed skin with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists. Thoroughly clean contaminated clothing before reuse. Clean or discard contaminated leather goods. If material is injected under the skin, seek medical attention immediately.
Ingestion	Do not induce vomiting unless directed to by a physician. Do not give anything to drink unless directed to by a physician. Never give anything by mouth to a person who is not fully conscious. Seek medical attention immediately.
Notes to Physician	INGESTION: The viscosity range of the product(s) represented by this MSDS is greater than 100 SUS at 100°F. Careful gastric lavage may be considered to evacuate large quantities of material.

SECTION 5. FIRE FIGHTING MEASURES

NFPA Flammability Classification NFPA Class-IIIB combustible material.

Flash Point Open cup: 228°C (442°F) (Cleveland.).

Lower Flammable Limit No data. **Upper Flammable Limit** No data.

Autoignition Temperature Not available.

Hazardous Combustion Products Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons and oxides of sulfur, phosphorus, zinc and/or nitrogen.

Special Properties This material can burn but will not readily ignite. This material will release vapors when heated above the flash point temperature that can ignite when exposed to a source of ignition. In enclosed spaces, heated vapor can ignite with explosive force. Mists or sprays may burn at temperatures below the flash point.

Extinguishing Media Use dry chemical, foam, carbon dioxide or water fog. Water or foam may cause frothing. Carbon dioxide and inert gas can displace oxygen. Use caution when applying carbon dioxide or inert gas in confined spaces.

Protection of Fire Fighters Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

Do not touch damaged containers or spilled material unless wearing appropriate protective equipment. Slipping hazard; do not walk through spilled material. Stop leak if you can do so without risk. For small spills, absorb or cover with dry earth, sand, or other inert non-combustible absorbent material and place into waste containers for later disposal. Contain large spills to maximize product recovery or disposal. Prevent entry into waterways or sewers. In urban area, cleanup spill as soon as possible. In natural environments, seek cleanup advice from specialists to minimize physical habitat damage. This material will float on water. Absorbent pads and similar materials can be used. Comply with all laws and regulations.

SECTION 7. HANDLING AND STORAGE

Handling Keep containers closed and do not handle or store near heat, sparks, or any other potential ignition sources. Avoid contact with oxidizing agents. Never siphon by mouth. Avoid contact with eyes, skin, and clothing. Avoid contamination and extreme temperatures.

Empty containers may contain product residues that can ignite with explosive force. Drain and purge equipment, as necessary, to remove material residues. Follow proper entry procedures, including compliance with 29 CFR 1910.146 prior to entering confined spaces such as tanks or pits. Use appropriate respiratory protection when concentrations exceed any established occupational exposure level (See Section 8). Promptly remove contaminated clothing. Wash exposed skin thoroughly with soap and water after handling.

Do not pressurize, cut, weld, braze solder, drill, grind or expose containers to flames, sparks, heat or other potential ignition sources. Protect containers against physical damage. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.

Storage

Keep container tightly closed. Store in a cool, dry, well-ventilated area. Store only in approved containers. Do not store with strong oxidizing agents. Do not store at elevated temperatures. Avoid storing product in direct sunlight for extended periods of time. Storage area must meet OSHA requirements and applicable fire codes. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers or waste residues of this product.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of mists and/or vapors below the recommended exposure limits (see below). An eye wash station and safety shower should be located near the work-station.

Personal Protective Equipment

Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.

Eye Protection

Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Wear goggles if splashing or spraying is anticipated. Wear goggles and face shield if material is heated above 125°F (51°C). Have suitable eye wash water available.

Hand Protection

None required for incidental contact. Use gloves constructed of chemical resistant materials such as heavy nitrile rubber if frequent or prolonged contact is expected. Use heat-protective gloves when handling product at elevated temperatures.

Body Protection

Avoid prolonged or repeated skin contact. Use clean protective clothing if splashing or spraying conditions are present such as long-sleeved garment. Remove oil contaminated clothing and launder before reuse. Heavily contaminated clothing and leather goods should be removed promptly and cleaned or discarded.

Respiratory Protection

The need for respiratory protection is not anticipated under normal use conditions and with adequate ventilation. If elevated airborne concentrations above applicable workplace exposure levels are anticipated, a NIOSH-approved organic vapor respirator equipped with a dust/mist prefilter should be used. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).

General Comments

Use good personal hygiene practices. Wash hands and other exposed skin areas with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities, or leaving work. DO NOT use gasoline, kerosene, solvents or harsh abrasives as skin cleaners. Since specific exposure standards/control limits have not been established for this product, the "Oil Mist, Mineral" exposure limits shown below are suggested as minimum control guidelines.

Occupational Exposure Guidelines

Substance	Applicable Workplace Exposure Levels
Oil Mist, Mineral	**ACGIH (United States).** TWA: 5 mg/m^3 8 hour(s). STEL: 10 mg/m^3 15 minute(s). **OSHA (United States).** TWA: 5 mg/m^3 8 hour(s).

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (TYPICAL)

Physical State	Liquid.	**Color**	Amber to dark amber	**Odor**	Mild petroleum odor
Specific Gravity	0.88 (Water = 1)	**pH**	Not applicable	**Vapor Density**	>1 (Air = 1)
Boiling Range	Not available.			**Melting/Freezing Point**	Not available.
Vapor Pressure	<0.001 kPa (<0.01 mm Hg) (at 20°C)			**Volatility**	Negligible volatility.
Solubility in Water	Negligible solubility in cold water.			**Viscosity (cSt @ 40°C)**	118
Flash Point	Open cup: 228°C (442°F) (Cleveland.).				
Additional Properties	Gravity, °API (ASTM D287) = 29.0 @ 60° F Density = 7.34 Lbs/gal. Viscosity (ASTM D2161) = AP 550 SUS @ 100° F				

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability Stable. **Hazardous Polymerization** Not expected to occur.

Conditions to Avoid Keep away from extreme heat, sparks, open flame, and strongly oxidizing conditions.

Materials Incompatibility Strong oxidizers.

Hazardous Decomposition Products No additional hazardous decomposition products were identified other than the combustion products identified in Section 5 of this MSDS.

SECTION 11. TOXICOLOGICAL INFORMATION

For other health-related information, refer to the Emergency Overview on Page 1 and the Hazards Identification in Section 3 of this MSDS.

Toxicity Data

Highly-refined petroleum lubricant oils

ORAL (LD50): Acute: >5000 mg/kg [Rat].
DERMAL (LD50): Acute: >2000 mg/kg [Rabbit].

Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects. In long term studies (up to two years) no carcinogenic effects have been reported in any animal species tested.

Zinc and zinc compounds

This material is an eye irritant.

Engine oil

Used motor oil was associated with cancer in lifetime skin painting studies with laboratory animals. Avoid prolonged or repeated contact with used motor oil. Use of good hygiene practices will reduce the liklihood of potential health effects.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Analysis for ecological effects has not been conducted on this product. However, if spilled, this product and any contaminated soil or water may be harmful to human, animal, and aquatic life. Also, the coating action associated with petroleum and petroleum products can be harmful or fatal to aquatic life and waterfowl.

Environmental Fate

An environmental fate analysis is not available for this specific product. Plants and animals may experience harmful or fatal effects when coated with petroleum products. Petroleum-based (mineral) lubricating oils normally will float on water. In stagnant or slow-flowing waterways, an oil layer can cover a large surface area. As a result, this oil layer might limit or eliminate natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway may be sufficient to cause a fish kill or create an anaerobic environment. This material contains phosphorus which is a controlled element for disposal in effluent waters in most sections of North America. Phosphorus is known to enhance the formation of algae. Severe algae growth can reduce oxygen content in the water possibly below levels necessary to support marine life.

SECTION 13. DISPOSAL CONSIDERATIONS

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition.

Conditions of use may cause this material to become a "hazardous waste", as defined by federal or state regulations. It is the responsibility of the user to determine if the material is a "hazardous waste" at the time of disposal. Transportation, treatment, storage, and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR 260 through 40 CFR 271). State and/or local regulations may be more restrictive. Contact your regional US EPA office for guidance concerning case specific disposal issues. Empty drums and pails retain residue. DO NOT pressurize, cut, weld, braze, solder, drill, grind, or expose this product's empty container to heat, flame, or other ignition sources. DO NOT attempt to clean it. Empty drums and pails should be drained completely, properly bunged or sealed, and promptly sent to a reconditioner.

SECTION 14. TRANSPORT INFORMATION

The shipping description below may not represent requirements for all modes of transportation, shipping methods or locations outside of the United States.

US DOT Status Not regulated by the U.S. Department of Transportation as a hazardous material.

Proper Shipping Name Not regulated.

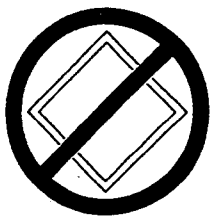
Hazard Class Not regulated.

Packing Group Not applicable.

UN/NA Number Not regulated.

Reportable Quantity A Reportable Quantity (RQ) has not been established for this material.

Placard(s)



Emergency Response Guide No. Not applicable.

MARPOL III Status Not a DOT "Marine Pollutant" per 49 CFR 171.8.

Oil: The product(s) represented by this MSDS is (are) regulated as "oil" under 40 CFR Part 130. Shipments by rail or highway in packaging having a capacity of 3500 gallons or more or in a quantity greater 42,000 gallons are subject to these requirements. In addition, mixtures containing 10% or more of this product may be subject to these requirements.

SECTION 15. REGULATORY INFORMATION

TSCA Inventory	This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.
SARA 302/304 Emergency Planning and Notification	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.
SARA 311/312 Hazard Identification	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories: No SARA 311/312 hazard categories identified.
SARA 313 Toxic Chemical Notification and Release Reporting	This product contains the following components in concentrations above *de minimis* levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 of SARA: Zinc and zinc compounds, Concentration: <2%
CERCLA	The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQ's) listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. Chemical substances present in this product or refinery stream that may be subject to this statute are: Zinc and zinc compounds, Concentration: <2%
Clean Water Act (CWA)	This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.
California Proposition 65	This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5): Toluene: <0.0005%
New Jersey Right-to-Know Label	Motor oil
Additional Remarks	No additional regulatory remarks.

SECTION 16. OTHER INFORMATION

Refer to the top of Page 1 for the HMIS and NFPA Hazard Ratings for this product.

REVISION INFORMATION

Version Number 6.0

Revision Date 10/9/2009

ABBREVIATIONS

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***** END OF MSDS *****

Safety Data Sheet

According to OSHA HCS 2012 (29 CFR 1910.1200)

Section 1: Identification

Product Identifier: **Propane**

SDS Number: **169570**

Synonyms/Other Means of Identification: Commercial Propane(All)
HD5 Propanepar LP-Gas
Liquefied Petroleum GasPropane(Unstenched)
Propane Commercial
Propane Motor Fuel
Propane for Process
Stenched PropanePropane

Intended Use: Fuel

Uses Advised Against: All others

Manufacturer:
Phillips 66 Company
P.O. Box 4428
Houston, Texas 77210

SDS Information:
Phone: 800-762-0942
Email: SDS@P66.com
URL: www.Phillips66.com

Emergency Health and Safety Number:
Chemtrec: 800-424-9300 (24 Hours)

Section 2: Hazards Identification

Classified Hazards
H220 -- Flammable gases -- Category 1
H280 -- Gases under pressure -- Liquefied gas

Other Hazards
May displace oxygen and cause rapid suffocation.

Label Elements

DANGER

H220: Extremely flammable gas
H280: Contains gas under pressure. May explode if heated.

May displace oxygen and cause rapid suffocation.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. (P210)*; Take precautionary measures against static discharge. (P243)*; Leaking gas fire: Do not extinguish, unless leak can be stopped safely. (P377)*; Eliminate all ignition sources if safe to do so. (P381)*; Protect from sunlight. Store in a well ventilated place. (P410+P403)*

Section 3: Composition / Information on Ingredients

Chemical Name	CASRN	Concentration[1]
Propane	74-98-6	80-100
Propylene	115-07-1	<20
Ethane	74-84-0	<6
n-Butane	106-97-8	<5
Isobutane	75-28-5	<2.5

[1] All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Odorized products contain small quantities (<0.1%) ethyl mercaptan as an olfactory indicator.

Section 4: First Aid Measures

Eye Contact: For contact with the liquefied gas, remove contact lenses if present and easy to do, hold eyelids apart and gently flush the affected eye(s) with lukewarm water. Seek immediate medical attention.

Skin Contact: Liquefied gases may cause cryogenic burns or injury. Treat burned or frostbitten skin by flushing or immersing the affected area(s) in lukewarm water. Do not rub affected area. Do not remove clothing that adheres due to freezing. After sensation has returned to the frostbitten skin, keep skin warm, dry, and clean. If blistering occurs, apply a sterile dressing. Seek immediate medical attention.

Inhalation (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If breathing is difficult, oxygen or artificial respiration should be administered by qualified personnel. If symptoms persist, seek medical attention.

Ingestion (Swallowing): This material is a gas under normal atmospheric conditions and ingestion is unlikely.

Most important symptoms and effects

Acute: Anesthetic effects at high concentrations
Delayed: None known or anticipated. See Section 11 for information on effects from chronic exposure, if any.

Notes to Physician: Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias.

Section 5: Fire Fighting Measures

NFPA 704 Hazard Class

Health: 2 **Flammability:** 4 **Instability:** 0

0 (Minimal)
1 (Slight)
2 (Moderate)
3 (Serious)
4 (Severe)

Extinguishing Media: Dry chemical or carbon dioxide is recommended. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Specific hazards arising from the chemical

Unusual Fire & Explosion Hazards: Extremely flammable. Contents under pressure. This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. If container is not properly cooled, it can rupture in the heat of a fire. Drains can be plugged and valves made inoperable by the formation of ice if rapid evaporation of large quantities of the liquefied gas occurs. Do not allow run-off from fire fighting to enter drains or water courses – may cause explosion hazard in drains and may reignite.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of nitrogen and sulfur may also be formed.

Special protective actions for firefighters: For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. If this cannot be done, allow fire to burn. Move undamaged containers from immediate hazard area if it can be done safely. Stay away from ends of container. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Extremely flammable. Spillages of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do so. The use of explosion-proof electrical equipment is recommended. Beware of accumulation of gas in low areas or contained areas, where explosive concentrations may occur. Prevent from entering drains or any place where accumulation may occur. Ventilate area and allow to evaporate. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

Environmental Precautions: Stop spill/release if it can be done safely. Water spray may be useful in minimizing or dispersing vapors. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.

Methods and material for containment and cleaning up: Notify relevant authorities in accordance with all applicable regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

Section 7: Handling and Storage

Precautions for safe handling: Keep away from ignition sources such as heat/sparks/open flame – No smoking. Take precautionary measures against static discharge. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8). Extremely Flammable. Contents under pressure. Gas can accumulate in confined spaces and limit oxygen available for breathing. Use only with adequate ventilation. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-70 and/or API RP 2003 for specific bonding/grounding requirements. Electrostatic charge may accumulate and create a hazardous condition when handling or processing this material. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Cold burns may occur during filling operations. Containers and delivery lines may become cold enough to present cold burn hazard.

Propane and odorant are heavier than air and will collect and pool along the ground or floor. Odorant, therefore, may not be detectable above the location of propane storage or service (for example, odorant in propane released or leaked into the basement of a dwelling may not be detected above the basement).

WARNING - The intensity of the odorant may fade over prolonged storage or in the presence of rust, when placed initially in new or freshly-cleaned storage vessels, or when exposed to masonry.

Conditions for safe storage: Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Store only in approved containers. Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. Avoid exposing any part of a compressed-gas cylinder to temperatures above 125F(51.6C). Gas cylinders should be stored outdoors or in well ventilated storerooms at no lower than ground level and should be quickly removable in an emergency.

Section 8: Exposure Controls / Personal Protection

Chemical Name	ACGIH	OSHA	Other
Propane	TWA: 1000 ppm as Aliphatic Hydrocarbon Gases: Alkane (C1-C4)	TWA: 1000 ppm TWA: 1800 mg/m³	---
Propylene	TWA: 500 ppm	---	---
Ethane	TWA: 1000 ppm as Aliphatic Hydrocarbon Gases: Alkane (C1-C4)	---	---
n-Butane	TWA: 1000 ppm as Aliphatic Hydrocarbon Gases: Alkane (C1-C4)	---	---
Isobutane	TWA: 1000 ppm as Aliphatic Hydrocarbon Gases: Alkane (C1-C4)	---	---

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Eye/Face Protection: The use of eye protection (such as splash goggles) that meets or exceeds ANSI Z.87.1 is recommended when there is potential liquid contact to the eye. Depending on conditions of use, a face shield may be necessary.

Skin/Hand Protection: Wear thermal insulating gloves and face shield or eye protection when working with materials that present thermal hazards (hot or cold).

Respiratory Protection: A NIOSH approved, self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode should be used in situations of oxygen deficiency (oxygen content less than 19.5 percent), unknown exposure concentrations, or situations that are immediately dangerous to life or health (IDLH).

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use.

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

Section 9: Physical and Chemical Properties

Data represent typical values and are not intended to be specifications. N/A = Not Applicable; N/D = Not Determined

Appearance: Colorless
Physical Form: Liquefied Gas
Odor: No distinct odor (or skunk, rotten egg or garlic if odorant added)
Odor Threshold: No data
pH: Not applicable

Flash Point: -156 °F / -104 °C
Test Method: Tag Closed Cup (TCC), ASTM D56
Vapor Pressure: 208 psia (Reid VP) @ 100°F / 37.8°C

Vapor Density (air=1): >1
Partition Coefficient (n-octanol/water) (Kow): No data

Melting/Freezing Point: -309 °F / -189 °C
Initial Boiling Point/Range: -44 °F / -42 °C
Solubility in Water: Negligible
Evaporation Rate (nBuAc=1): >1
Percent Volatile: 100%

Auto-Ignition Temperature: 842 °F / 450 °C
Upper Explosive Limits (vol % in air): 9.5
Lower Explosive Limits (vol % in air): 2.1
Specific Gravity (water=1): 0.50-0.51 @ 60°F (15.6°C)

Section 10: Stability and Reactivity

Reactivity: Stable under normal ambient and anticipated conditions of use.

Chemical stability: Stable under normal ambient and anticipated conditions of use.

Possibility of hazardous reactions: Hazardous reactions not anticipated.

Conditions to avoid: Avoid all possible sources of ignition. Heat will increase pressure in the storage tank.

Incompatible materials: Avoid contact with acids, aluminum chloride, chlorine, chlorine dioxide, halogens and oxidizing agents.

Hazardous decomposition products: Not anticipated under normal conditions of use.

Section 11: Toxicological Information

Information on Toxicological Effects of Substance/Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Unlikely to be harmful	Asphyxiant. High concentrations in confined spaces may limit oxygen available for breathing. See Signs and Symptoms.	> 20,000 ppm
Dermal	Skin absorption is not anticipated		Not Applicable
Oral	Ingestion is not anticipated		Not Applicable

Aspiration Hazard: Not applicable

Skin Corrosion/Irritation: Not expected to be irritating. Contact with the liquefied or pressurized gas may cause frostbite ("cold" burn).

Serious Eye Damage/Irritation: Not expected to be irritating. Contact with the liquefied or pressurized gas may cause momentary freezing followed by swelling and eye damage.

Symptoms of Overexposure: Light hydrocarbon gases are simple asphyxiants and can cause anesthetic effects at high concentrations. Symptoms of overexposure, which are reversible if exposure is stopped, can include shortness of breath, drowsiness, headaches, confusion, decreased coordination, visual disturbances and vomiting. Continued exposure can lead to hypoxia (inadequate oxygen), rapid breathing, cyanosis (bluish discoloration of the skin), numbness of the extremities, unconsciousness and death.

Skin Sensitization: Skin contact is not anticipated.

Respiratory Sensitization: Not expected to be a respiratory sensitizer.

Specific Target Organ Toxicity (Single Exposure): Not expected to cause organ effects from single exposure.

Specific Target Organ Toxicity (Repeated Exposure): Not expected to cause organ effects from repeated exposure.

Carcinogenicity: Not expected to cause cancer.

Germ Cell Mutagenicity: Not expected to cause heritable genetic effects.

Reproductive Toxicity: Not expected to cause reproductive toxicity.

Other Comments: High concentrations may reduce the amount of oxygen available for breathing, especially in confined spaces. Hypoxia (inadequate oxygen) during pregnancy may have adverse effects on the developing fetus. The odorant, ethyl mercaptan, can be irritating to the eyes, skin and respiratory tract. At high concentrations, a person can temporarily lose the ability to smell ethyl mercaptan. In addition, some individuals may have an impaired sense of smell, which inhibits the detection of the odorant.

Information on Toxicological Effects of Components

Propane

Target Organs: No systemic or neurotoxic effects were noted in rats exposed to concentrations of propane as high as 12,000 ppm for 28 days.

Reproductive Toxicity: No adverse reproductive or developmental effects were observed in rats exposed to propane; no observed adverse effect level = 12,000 ppm.

n-Butane

Target Organs: No systemic or neurotoxic effects were noted in rats exposed to concentrations of butane as high as 9,000 ppm for 28 days.

Reproductive Toxicity: No adverse reproductive or developmental effects were observed in rats exposed to butane; no observed adverse effect level = 12,000 ppm.

Isobutane

Target Organs: No systemic or neurotoxic effects were noted in rats exposed to concentrations of isobutane as high as 9,000 ppm for 28 days.

Reproductive Toxicity: No adverse developmental effects were observed in rats exposed to concentrations of isobutane as high as 9000 ppm. Fertility and mating indices may have been affected at 9000 ppm but no effects were observed at 3000 ppm (NOAEL).

Section 12: Ecological Information

GHS Classification:
No classified hazards

Toxicity: Petroleum gases will readily evaporate from the surface and would not be expected to have significant adverse effects in the aquatic environment.

Persistence and Degradability: The hydrocarbons in this material are expected to be inherently biodegradable. In practice, hydrocarbon gases are not likely to remain in solution long enough for biodegradation to be a significant loss process. Hydrogen sulfide, if present in refinery gas streams, will be rapidly oxidized in water and insoluble sulfides precipitated from water when metallic radicals are present.

Bioaccumulative Potential: Since the log Kow values measured for refinery gas constituents are below 3, they are not regarded as having the potential to bioaccumulate.

Mobility in Soil: Due to the extreme volatility of petroleum gases, air is the only environmental compartment in which they will be found. In air, these hydrocarbons undergo photodegradation by reaction with hydroxyl radicals with half-lives ranging from 3.2 days for n-butane to 7 days for propane.

Other Adverse Effects: None anticipated.

Section 13: Disposal Considerations

This material is a gas and would not typically be managed as a waste.

Section 14: Transport Information

U.S. Department of Transportation (DOT)

Shipping Description:	UN1978, Propane, 2.1,
Non-Bulk Package Marking:	Propane, UN1978
Non-Bulk Package Labeling:	Flammable gas

Bulk Package/Placard Marking: Flammable gas / 1978
Packaging - References: 49 CFR: 173.306; 173.304; 173.314 & .315
(Exceptions; Non-bulk; Bulk)
Hazardous Substance: See Section 15 for RQ's
Emergency Response Guide: 115
Note: ***For domestic transportation only, UN1075 may be substituted for the UN number shown as long as the substitution is consistent on package markings, shipping papers, and emergency response information. See 49 CFR 172.102 Special Provision 19.***
Containers of NON-ODORIZED liquefied petroleum gas must be marked either NON-ODORIZED or NOT ODORIZED as of September 30, 2006. [49 CFR 172.301(f), 326(d), 330(c) and 338(e)]

International Maritime Dangerous Goods (IMDG)
Shipping Description: UN1978, Propane, 2.1
Non-Bulk Package Marking: Propane, UN1978
Labels: Flammable gas
Placards/Marking (Bulk): Flammable gas / 1978
Packaging - Non-Bulk: P200
EMS: F-D, S-U

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)
UN/ID #: UN1978
Proper Shipping Name: Propane
Hazard Class/Division: 2.1
Non-Bulk Package Marking: Propane, UN1978
Labels: Flammable gas
ERG Code: 10L
Note: ***Special provision A1 applies to this product.***

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
Packaging Instruction #:	*Forbidden*	*Forbidden*	200
Max. Net Qty. Per Package:	*Forbidden*	*Forbidden*	150 kg

Section 15: Regulatory Information

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):
This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)
Acute Health: Yes
Chronic Health: No
Fire Hazard: Yes
Pressure Hazard: Yes
Reactive Hazard: No

CERCLA/SARA - Section 313 and 40 CFR 372:
This material contains the following chemicals subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR 372:

Chemical Name	Concentration	de minimis
Propylene	<20	1.0%

EPA (CERCLA) Reportable Quantity (in pounds):
EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14)).

California Proposition 65:
WARNING: Chemicals known to the State of California to cause cancer, birth defects or other reproductive harm are created by the combustion of propane.

International Hazard Classification

Canada:
Canadian Regulations:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the Regulations.

WHMIS Hazard Class:
A - Compressed Gas
B1 - Flammable Gases

National Chemical Inventories
All components are either listed on the US TSCA Inventory, or are not regulated under TSCA
All components are either on the DSL, or are exempt from DSL listing requirements.

U.S. Export Control Classification Number: EAR99

Section 16: Other Information

Date of Issue:	Previous Issue Date:	SDS Number:	Status:
07-Jan-2013	20-Dec-2012	169570	FINAL

Revised Sections or Basis for Revision:
Identified Hazards (Section 2)

Guide to Abbreviations:
ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

Disclaimer of Expressed and implied Warranties:
The information presented in this Safety Data Sheet is based on data believed to be accurate as of the date this Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

Dear Customer,

Enclosed is the Safety Data Sheet (SDS) related to your recent product purchase.

For the SDS to serve its purpose it must be forwarded to all locations where the product is used, handled, resold, or stored. In addition, the SDS should be forwarded to all individuals involved with the design, implementation, and/or control of operations involving the product. Note also that if you resell, repackage, or otherwise distribute the purchased product(s) and the product is hazardous, it is your responsibility to provide the SDS to your customers.

SDSs are provided to current customers with the initial purchase of a product and whenever it is revised to reflect new health or safety information. If you currently have copies of this SDS, please check the issue date of your present copies against the date of the attached SDS and substitute any outdated copies.

For products containing SARA Section 313 substances, an SDS is sent to all customers with their firs order of the calendar year to comply with the supplier notification provisions of the Superfund Amendment and Reauthorization Act.

In accordance with US EPA rules, should any of your employees allege or exhibit any new adverse health or environmental effects related specifically to the product, please advise us in writing of the circumstances of the allegation according to TSCA, Section 8c.

If you are not the correct recipient of this SDS, if you need to change your company contact information for receiving SDSs, or you need additional information about our products, please notify the group identified in the return address field. You can also call the Product Safety Help desk at (800) 762-0942 or email us at sds@p66.com.

We appreciate your continued business.

Enclosure

ConocoPhillips
NGL S&T
600 N. Dairy Ashford HU 2014D
Houston TX 77079 USA
ATTN: Pat Burger 281-293-2471

[redacted]

See other side for important information

ıst/Addr #: 70-0010048134

STEM BROTHERS INC
760 FRENCHTOWN RD
MILFORD NJ 08848

MATERIAL SAFETY DATA SHEET

No. 2 Heating Oil

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: No. 2 Heating Oil**Product Code:** Multiple

Synonyms:
1258
High Sulfur No. 2 Heating Oil
High Sulfur No. 2 Heating Oil - Dyed
High Sulfur No. 2 Heating Oil Blend Stock
Home Heating Oil
Low Sulfur No. 2 Heating Oil
No. 2 Fuel Oil
Winterized No. 2 Low Sulfur Heating Oil

Intended Use: Fuel Chemical Family: Petroleum hydrocarbon

Responsible Party:
Petroleum Products Corp.
900 South Eisenhower Blvd.
Middletown, PA 17057

For Additional MSDSs 717-939-0466

Technical Information: 918-661-8327

The intended use of this product is indicated above. If any additional use is known, please contact us at the Technical Information number listed.

EMERGENCY OVERVIEW

24 Hour Emergency Telephone Numbers:
Spill, Leak, Fire or Accident
Call PERS
North America: 1-800-633-8253

Health Hazards/Precautionary Measures: Causes severe skin irritation. Aspiration hazard if swallowed. Can enter lungs and cause damage. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Do not taste or swallow. Wash thoroughly after handling.

Physical Hazards/Precautionary Measures: Flammable liquid and vapor. Keep away from heat, sparks, flames,static electricity or other sources of ignition.

Appearance: Straw-colored to dyed red**Physical form:** Liquid

Odor: Characteristic petroleum

NFPA Hazard Class: **HMIS Hazard Class**

Health: 1 (Slight) Health: 3*(High)Flammability:2 (Moderate) Flammability: 2 (Moderate)Reactivity: 0 (Least) Physical Hazard: 0 (Least)

*Indicates possible chronic health effects.

2. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS % VOLUME EXPOSURE GUIDELINE

		Limits	Agency	Type
Diesel Fuel No. 2 CAS# 68476-34-6	100	100 mg/m3	ACGIH	TWA-SKIN
NaphthaleneCAS# 91-20-3	<1		ACGIH	
		10 ppm 15 ppm	ACGIH	TWASTEL
		10 ppm	OSHA	TWA
		250 ppm	NIOSH	IDLH

Note: State, local or other agencies or advisory groups may have established more stringent limits.Consult an industrial hygienist or similar professional, or your local agencies, for further information.

1%=10,000 PPM.

All components are listed on the TSCA inventory.

3. HAZARDS IDENTIFICATION

Potential Health Effects:

Eye: Contact may cause mild eye irritation including stinging, watering, and redness.

Skin: Severe skin irritant. Contact may cause redness, itching, burning, and severe skin damage.Prolonged or repeated contact can worsen irritation by causing drying and cracking of the skin, leadingto dermatitis (inflammation). Not acutely toxic by skin absorption, but prolonged or repeated skincontact may be harmful (see Section 11).

Inhalation (Breathing): No information available. Studies by other exposure routes suggesta low degree of toxicity by inhalation.

Ingestion (Swallowing): Low degree of toxicity by ingestion. ASPIRATION HAZARD - This material can enter lungs during swallowing or vomiting and cause lung inflammation and damage.

Signs and Symptoms: Effects of overexposure may include irritation of the nose and throat,irritation of the digestive tract, nausea, diarrhea and transient excitation followed by signs of nervoussystem depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation andfatigue).

Cancer: Possible skin cancer hazard (see Sections 11 and 15).

Target Organs: There is limited evidence from animal studies that overexposure may cause injuryto the kidney (see Section 11).

Developmental: Inadequate data available for this material.

Other Comments: This material may contain polynuclear aromatic hydrocarbons (PNAs) whichhave been known to produce a phototototoxic reaction when contaminated skin is exposed to sunlight. The effect is similar in appearance to an exaggerated sunburn, and is temporary in duration if exposure isdiscontinued. Continued exposure to sunlight can result in more serious skin problems includingpigmentation (discoloration), skin eruptions (pimples), and possible skin cancers.

Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skindisorders and kidney disorders.

4. FIRST AID MEASURES

Eye: **If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyeswith clean water. If symptoms persist, seek medical attention.**

Skin: **Immediately remove contaminated shoes, clothing, and constrictive jewelry and flush affectedarea(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seekimmediate medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly bywashing with mild soap and water. If irritation or redness develops, seek immediate medicalattention.**

Inhalation (Breathing): If respiratory symptoms develop, move victim away from source of exposure and intofresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediatelybegin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualifiedpersonnel. Seek immediate medical attention.

Ingestion (Swallowing): Aspiration hazard: Do not induce vomiting or give anything by mouth because thismaterial can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious andvomiting, place on the left side with the head down. If possible, do not leave victim unattended and observeclosely for adequacy of breathing. Seek medical attention.

Note To Physicians: High-pressure hydrocarbon injection injuries may produce substantialnecrosis of underlying tissue despite an innocuous appearing external wound. Often these injuriesrequire extensive emergency surgical debridement and all injuries should be evaluated by aspecialist in order to assess the extent of injury.

5. FIRE FIGHTING MEASURES

Flammable Properties: **Flash Point: 125-180°F/52-82°C PMCC, ASTM D-93 OSHA Flammability Class: Combustible liquid LEL%: 0.3 / UEL%: 10.0Autoignition Temperature: 500°F/260°C**

Unusual Fire & Explosion Hazards: This material is flammable and can be ignited by heat, sparks, flames, orother sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment, and electronicdevices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsicallysafe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, orexplode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. Vapors areheavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of afire.

Extinguishing Media: Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended tocool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applyingcarbon dioxide in confined spaces. Water may be ineffective for extinguishment, unless used under favorableconditions by experienced fire fighters.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazardarea should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, orwhen explicitly required by DOT, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk.

Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed tofire with water, if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes.

6. ACCIDENTAL RELEASE MEASURES

Flammable. Keep all sources of ignition and hot metal surfaces away from spill/release. The use of explosion-proof equipment is recommended.

Stay upwind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazardarea and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8).

Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Dike far ahead of spill for later recovery or disposal. Use foam on spills to minimize vapors (seeSection 5). Spilled material may be absorbed into an appropriate absorbent material.

Notify fire authorities and appropriate federal, state, and local agencies. Immediate cleanup of any spill isrecommended. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoiningshorelines, notify the National Response Center (phone number 800-424-8802).

7. HANDLING AND STORAGE

Handling: Open container slowly to relieve any pressure. Bond and ground all equipment whentransferring from one vessel to another. Can accumulate static charge by flow or agitation. Can be ignitedby static discharge. The use of explosion-proof equipment is recommended and may be required (seeappropriate fire codes). Refer to NFPA-704 and/or API RP 2003 for specific bonding/grounding requirements.

Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTMD-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrationsexceed any established exposure limits (see Sections 2 and 8).

Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition suchas sparks or open flames. Use good personal hygiene practices.

High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have seriousconsequences even though no symptoms or injury may be apparent. This can happen accidentally when usinghigh pressure equipment such as high pressure grease guns, fuel injection apparatus or from pinhole leaks intubing of high pressure hydraulic oil equipment.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill,grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode andcause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped tothe supplier or a drum reconditioner. All containers should be disposed of in an environmentally safemanner and in accordance with governmental regulations.

Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSIZ49.1 and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilatedareas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Post area "No Smoking or Open Flame." Store only in approved containers. Keep away from any incompatible material (seeSection 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred.Indoor storage should meet OSHA standards and appropriate fire codes.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations belowthe established exposure limits (see Section 2), additional engineering controls may be required. Where explosivemixtures may be present, electrical systems safe for such locations must be used (see appropriate electricalcodes).

Personal Protective Equipment (PPE):

Respiratory: A NIOSH certified air purifying respirator with an organic vapor cartridge maybe used

under conditions where airborne concentrations are expected to exceed exposurelimits (see Section 2).

Protection provided by air purifying respirators is limited (see manufacturer's respiratorselection guide). Use a NIOSH approved self-contained breathing apparatus (SCBA) orequivalent operated in a pressure demand or other positive pressure mode if there ispotential for an uncontrolled release, exposure levels are not known, or any othercircumstances where air purifying respirators may not provide adequate protection.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Skin: **The use of gloves impervious to the specific material handled is advised to prevent skincontact, possible irritation, and skin damage. Examples of approved materials are nitrile,or Viton® (see glove manufacturer literature for information on permeability). Dependingon conditions of use, apron and/or arm covers may be necessary.**

Eye/Face: Approved eye protection to safeguard against potential eye contact, irritation, orinjury is recommended. Depending on conditions of use, a face shield may be necessary.

Other Protective Equipment: Eye wash and quick-drench shower facilities should beavailable in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse.It is recommended that impervious clothing be worn when skin contact is possible.

Suggestions for the use of specific protective materials are based on readily available publisheddata. Users should check with specific manufacturers to confirm the performance of their products.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm).Appearance: Straw-colored to dyed redPhysical State: LiquidOdor: Characteristic petroleumpH: Not applicableVapor Pressure (mm Hg): 0.40Vapor Density (air=1): >3Boiling Point/Range: 300-690°F / 366Freezing/Melting Point: No DataSolubility in Water: NegligibleSpecific Gravity: 0.81-0.88 @60°FPercent Volatile: NegligibleEvaporation Rate (nBuAc=1): <1Viscosity: 1.7-4.1 cSt @40°FBulk Density: 7.08 lbs/galFlash Point: 125-180°F / 52-82°C PMCC, ASTM D-93Flammable/Explosive Limits (%): LEL: 0.3 / UEL: 10.0

10. STABILITY AND REACTIVITY

Stability: Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. Flammable liquid and vapor. Vapor can cause flash fire.

Conditions To Avoid: Avoid all possible sources of ignition (see Sections 5 and 7).

Materials to Avoid (Incompatible Materials): Avoid contact with strong oxidantssuch as liquid chlorine, concentrated oxygen, sodium hypochlorite, calcium hypochlorite, etc.

Hazardous Decomposition Products: The use of hydrocarbon fuels in an area withoutadequate ventilation may result in hazardous levels of combustion products (e.g., oxides of carbon, sulfur andnitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels. ACGIH has included a TLV of 0.02 mg/m3 TWA for diesel exhaust particulate on its 2002 Notice of Intended Changes. See Section 11 for additional information on hazards of engine exhaust.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Diesel Fuel No. 2 (CAS# 68476-34-6)

Carcinogenicity: Chronic dermal application of certain middle distillate streams contained indiesel fuel No. 2 resulted in an increased incidence of skin tumors in mice. This material has not beenidentified as a carcinogen by NTP, IARC, or OSHA. IARC has classified Diesel exhaust as probablycarcinogenic in humans.

Target Organ(s): Limited evidence of renal impairment has been noted from a few case reportsinvolving excessive exposure to diesel fuel No. 2.

Naphthalene (CAS# 91-20-3)

Carcinogenicity: Naphthalene has been evaluated in two year inhalation studies in both rats and mice. The National Toxicology Program (NTP) concluded that there is clear evidence of carcinogenicityin male and female rats based on increased incidences of respiratory epithelial adenomas and olfactoryepithelial neuroblastomas of the nose. NTP found some evidence of carcinogenicity in female mice(alveolar adenomas) and no evidence of carcinogenicity in male mice. Naphthalene has been identified as acarcinogen by IARC.

Acute Data:
Diesel Fuel No. 2
Dermal LD50>5ml/kg (Rabbit)
LC50=No data available
Oral LD50=9 ml/kg (Rat)

12. ECOLOGICAL INFORMATION

Not evaluated at this time

13. DISPOSAL CONSIDERATIONS

This material, if discarded as produced, would be a RCRA "characteristic" hazardous waste due to thecharacteristic(s) of ignitability (D001) and benzene (D018). If the spilled or released material impacts soil,water, or other media, characteristic testing of the contaminated materials may be required prior to theirdisposal. Further, this material, once it becomes a waste, is subject to the land disposal restrictions in 40CFR 268.40 and may require treatment prior to disposal to meet specific standards. Consult state and localregulations to determine whether they are more stringent than the federal requirements.

Container contents should be completely used and containers should be emptied prior to discard. Containerrinsate could be considered a RCRA hazardous waste and must be disposed of with care and in full compliancewith federal, state and local regulations. Larger empty containers, such as drums, should be returned to thedistributor or to a drum reconditioner. To assure proper disposal of smaller empty containers, consult withstate and local regulations and disposal authorities.

14. TRANSPORT INFORMATION

DOT Shipping Description: Diesel fuel,3 or Combustible Liquid*,UN1202**,III

Non-Bulk Package Marking: Diesel fuel, UN1202** or None **Non-Bulk Package Label:** Flammable or None **Bulk Package Placard/Marking:** Flammable/1202** **Hazardous Substance/RQ** None **Packaging References** 49 CFR 173.150, 173. 203, 173.241 **Emergency Response Guide:** 128

Note: ***This product may be reclassed as a combustible liquid when shipped domestically or by rail or highway.If reclassed as a combustible liquid, this product is not regulated by DOT when shipped in non-bulkpackages.**

**NA1993 may be used instead of UN1202 for land transportation.

15. REGULATORY INFORMATION

EPA SARA 311/312 (Title III Hazard Categories):

Acute Health: Yes **Chronic Health:** Yes **Fire Hazard:** Yes **Pressure Hazard:** No **Reactive Hazard:** No

This material contains the following chemicals subject to the reporting requirements of SARA 313 and 40

SARA 313 and 40 CFR 372:

CFR 372:

Component	CAS Number	Weight %
Naphthalene	91-20-3	<1

California Proposition 65:

Warning: This material contains the following chemicals which are known to the State of California to cause cancer,birth defects or other reproductive harm, and are subject to the requirements of California Proposition 65 (CA Health& Safety Code Section 25249.5):

Component	Effect
Benzene	Cancer, Developmental and Reproductive ToxicantToluene Developmental Toxicant

Diesel engine exhaust, while not a component of this material, is on the Proposition 65 list of chemicals known to theState of California to cause cancer.

Carcinogen Identification:

This material has not been identified as a carcinogen by NTP, IARC, or OSHA. See Section 11 for carcinogenicity information of individual components, if any. Diesel exhaust is a probable cancerhazard based on tests in laboratory animals. It has been identified as a carcinogen by IARC.

EPA (CERCLA) Reportable Quantity:

--None-

Canada - Domestic Substances List: Listed **WHMIS Class:**

B2-Flammable Liquid D2B-Materials causing other toxic effects - Toxic Material

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations
(CPR) and the MSDS contains all the information required by the CPR.

16. OTHER INFORMATION

Issue Date: 02/13/03Previous Issue Date: 01/01/03Product Code: MultipleRevised Sections: 1, 3, 5, 16 Previous Product Code: Multiple
MSDS Number: 724240
Status: Final

Disclaimer of Expressed and Implied Warranties:

The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety DataSheet was prepared. **HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE.** No responsibility is assumed for any damage or injury resulting from abnormaluse or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the conditionthat the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on thecondition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without alicense.

No. 2 Fuel Oil MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT and COMPANY INFORMATION

Global Companies LLC
800 South St. Water Mill Center
Waltham, MA 02454-9161

EMERGENCY TELEPHONE NUMBER (24 hrs): **CHEMTREC** **(800) 424-9300**
COMPANY CONTACT (business hours): **Corporate Safety** **800-542-0778**

SYNONYMS: #2 Heating Oil; Heating Oil Plus™; 2 Oil; Off-road Diesel Fuel; High Sulfur Diesel
See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS

INGREDIENT NAME	EXPOSURE LIMITS	CONCENTRATION PERCENT BY WEIGHT
#2 Fuel Oil	OSHA PEL-TWA: 5 mg/m as mineral oil mist	100
CAS NUMBER: 68476-30-2	ACGIH TLV-TWA: 1997 NOIC - 100 mg/m3, skin, A3	
Naphthalene	OSHA PEL-TWA: 10 ppm	Typically 0.1
CAS NUMBER: 91-20-3	ACGIH TLV-TWA/STEL: 10 / 15 ppm, A4	

A complex combination of hydrocarbons with carbon numbers in the range C9 and higher produced from the distillation of petroleum crude oil.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
CAUTION!
OSHA NFPA COMBUSTIBLE LIQUID - SLIGHT TO MODERATE IRRITANT - EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED

OVERVIEW
Moderate fire hazard. Avoid breathing vapors or mists. May cause dizziness and drowsiness. May cause moderate eye irritation and skin irritation. Long-term, repeated exposure may cause skin cancer.
If ingested, do NOT induce vomiting, as this may cause chemical pneumonia fluid in the lungs).
EYES
Contact with eyes may cause mild irritation.
SKIN
Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.
INGESTION
The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.
Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.
INHALATION
Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.
CHRONIC EFFECTS and CARCINOGENICITY
Similar products have produced skin cancer and systemic toxicity in laboratory animals following repeated applications. The significance of these results to human exposures has not been determined - see Section 11 Toxicological Information.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash).

4. FIRST AID MEASURES

EYES
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or with waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION
DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material, which enter the mouth, should be rinsed out until the taste is dissipated.

INHALATION
Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:	
FLASH POINT:	100.4 °F (38 °C) minimum ATSM D-396
AUTOIGNITION POINT:	494 °F (257 °C)
OSHA/NFPA FLAMMABILITY CLASS:	2 (COMBUSTIBLE)
LOWER EXPLOSIVE LIMIT (%):	0.6
UPPER EXPLOSIVE LIMIT (%):	7.5

FIRE AND EXPLOSION HAZARDS
OSHA and NFPA Class 2 COMBUSTIBLE LIQUID (see Section 14 for transportation classification). Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA
SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, C02, water spray, fire fighting foam, or Halon.
LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

FIRE FIGHTING INSTRUCTIONS
Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.
Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.
See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY'S SPCC, SPILL CONTINGENCY OR EMERGENCY RESPONSE PLAN.
Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Do not touch or walk-through spilled material. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.
Take up with dry earth, sand or other non-combustible, inert oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container with clean, non-sparking tools for reclamation or disposal. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8). Local and / or Federal notification may be required if this material is released to the environment (see Section 15 for additional information).

7. HANDLING and STORAGE

HANDLING PRECAUTIONS

Handle as a combustible liquid. Keep away from heat, sparks, excessive temperatures and open flame!
No smoking or open flame in storage, use or handling areas. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.
Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when this product is loaded into tanks previously containing low flash point products (such as gasoline) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

STORAGE PRECAUTIONS

Keep containers closed and clearly labeled. Label all secondary containers that this material is transferred into with the chemical name and associated hazard(s).Use approved vented storage containers. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.
Store in a well-ventilated area. Protect containers from damage and vehicular traffic. Post "No Smoking" signs in product storage areas. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks."

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse.

Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile, neoprene, or PVC are recommended. Chemical protective clothing such as of E. I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, ANSI 288.2-1992, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection.
Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE
Red or reddish/orange colored (dyed) liquid
ODOR
Mild, petroleum distillate odor
BASIC PHYSICAL PROPERTIES

BOILING RANGE:	340 to 700 °F (171 to 371 °C)
VAPOR PRESSURE:	0.009 psia @ 70 °F (21 °C)
VAPOR DENSITY (air = 1):	> 1.0
SPECIFIC GRAVITY (H20 = 1):	AP 0.87
PERCENT VOLATILES:	100
EVAPORATION RATE:	Slow; varies with conditions
SOLUBILITY (H20):	Negligible

10. STABILITY and REACTIVITY

STABILITY: Stable. Hazardous polymerization will not occur
CONDITIONS TO AVOID
Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.
INCOMPATIBLE MATERIALS
Keep away from strong acids and oxidizers; Viton ®; Fluorel
HAZARDOUS DECOMPOSITION PRODUCTS
Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

11. TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY
Acute Oral LD50 (rat): 14.5 ml/kg
Acute Dermal LD50 (rabbit): > 5 ml/kg
Guinea Pig Sensitization: negative
Primary dermal irritation: moderately irritating (Draize mean irritation score - 3.98 rabbits)
Draize eye irritation: mildly irritating (Draize score, 48 hours, unwashed - 2.0 rabbits)
CHRONIC EFFECTS AND CARCINOGENICITY
Carcinogenic: IARC: NO NTP: NO OSHA: NO ACGIH: 1997 NOIC: A3
Dermal carcinogenicity: positive - mice
Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.
This product is similar to Diesel Fuel. IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A) and NIOSH regards it as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.
MUTAGENICITY (genetic effects)
Material of similar composition has been positive in a mutagenicity study.

12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations (See Section 15 for additional information).

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

PROPER SHIPPING NAME:	FUEL OIL, NO. 2
HAZARD CLASS & PACKING GROUP:	3, PG III
DOT IDENTIFICATION NUMBER:	NA 1993
DOT SHIPPING LABEL:	FLAMMABLE LIQUID

EMERGENCY RESPONSE GUIDEBOOK GUIDE NUMBER: 128

May be reclassified for transportation as a COMBUSTIBLE LIQUID under conditions of DOT 49 CFR 173.120(b)(2).

15. REGULATORY INFORMATION

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other regulations at the state and/or local level. Consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow-up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

EPA NOTIFICATION (OIL SPILLS)

If the there is a discharge of more than 1,000-gallons of oil into or upon navigable waters of the United States, or if it is the second spill event of 42 gallons or more of oil into water within a twelve (12) month period, a written report must be submitted to the Regional Administrator of the EPA within sixty days of the event.

RCRA Information

If disposed, this product would be considered a hazardous waste under RCRA with an EPA waste code of D001 for the characteristic of ignitibility.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause, which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product does not contain toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372. However, Polycyclic Aromatic Compounds (PACs) are coincidentally manufactured from the combustion of various fuel oils and other petroleum products. Under SARA Section 313, the de minims exemption has been eliminated for PACs and other listed persistent bio-accumulative and toxic chemicals (PBTs). Refer to EPA guidance for additional reporting information.

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 3(Combustible Liquid); Class D, Division 2, Subdivision B (Toxic by other means)

16. OTHER INFORMATION

NFPA@ HAZARD RATING

HEALTH:	1	Slight
FIRE:	2	Moderate
REACTIVITY:	0	Negligible

HMIS® HAZARD RATING

HEALTH:	1 *	Slight
FIRE:	2	Moderate
REACTIVITY:	0	Negligible

* Chronic

ABBREVIATIONS:

AP = Approximately	<= Less than	>= Greater than
N/A = Not Applicable	N/D = Not Determined	ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists
API	American Petroleum Institute
AIHA	American Industrial Hygiene Association
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
ANSI	American National Standards Institute
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
HMIS	Hazardous Materials Information System
IARC	International Agency For Research On Cancer
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association
NIOSH	National Institute of Occupational Safety and Health
NOIC	Notice of Intended Change
NTP	National Toxicology Program
OPA	Oil Pollution Act of 1990
OSHA	U.S. Occupational Safety & Health Administration
PEL	Permissible Exposure Limit (OSHA)
RCRA	Resource Conservation and Recovery Act
REL	Recommended Exposure Limit (NIOSH)
SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	Self-Contained Breathing Apparatus
SPCC	Spill Prevention, Control, and Countermeasures
STEL	Short-Term Exposure Limit (generally 15 minutes)
TLV	Threshold Limit Value (ACGIH)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average (8 hr.)
WEEL	Workplace Environmental Exposure Level (AIHA)
WHMIS	Canadian Workplace Hazardous Materials Information System

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